Model Name: GA-Gaming B8

Rev 1.01

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SHEET	TITLE
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37	KB_MS_USB
38	F_USB30
39	F_USB20
40	R_USB
41	ALC1120
42	AUDIO JACK
43	LAN-B~I219
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61	POWER MAP
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Model Name: GA-Gaming B8

Component value change history

Data	Change Item	Reason
2016/10/24 PCB:1.01	1.PCB first release	9MGAMNB8-00-10B
2016/12/05	1、變更TMOS HEAT SINK料號:12SP2-S09425-L1R/L2R/L3R 2、增加SSAC3 軟墊:12KRH-041017-01R	9MGAMNB8-00-10C

Circuit or PCB layout change

DATE	Change Item	Reason
2015/07/20 PCB:0.1	1.PCB first release	9MGAMNB8-00-01
2016/09/19 PCB:0.2	1、Updata ASM2142 Circuit 。 2、SWAP NR85、NR86 3、Rename SATA3_4_5 to SATA3_0_1 4、Add NR400、NR401 5、Del AUDIO_HS 6、 SWAP PIN RAU2D1 , TCA_ESD10 7、 Updata MODEL NAME: GAMING B8 8、 Add LED FOOTPRINT 9、 Updata LED Circuit. 10、Updata AUDIO Circuit 。 11、Updata MABC8 footprint。 12、SWAP PIN BRN11 13、Del C_3LED3、C_3LED6、C_3LED33 14、DEL TR1、TBC4、NR86 15、SWAP CRN6 16、Add MCUCD9、MCUQ20、MCUR80 17、Change 0 ohm to short PAD。 18、Change TBC3 net to TPM_CLK	9MGAMNB8-00-02
2016/10/14 PCB:1.0	1、Rename 40S,60S,80S,110S to 40,60,80,110. 2、MASK LED。 3、Updata PWM Circuit.(MASK)。 4、Change AUDIO、USB30_LAN AGND。 5、DEL ALC1220 LDO。 6、Rename MOS_HS_1 to TMOS、MOS_HS2 to RMOS。 7、Del CK_HS、REAR_HS、FPD3。 8、Change CKA_R9 to mask。	9MGAMNB8-00-10A
2016/10/24 PCB:1.01	1、Add DCC51、DCC52、DCC53、DCC54、DCC55、DCC8、DCC9、DCC10。 2、Change MOATR1、MOATR3 to 0402 0 ohm。	9MGAMNB8-00-10B

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Title: BOM & PCB MODIFY HISTORY

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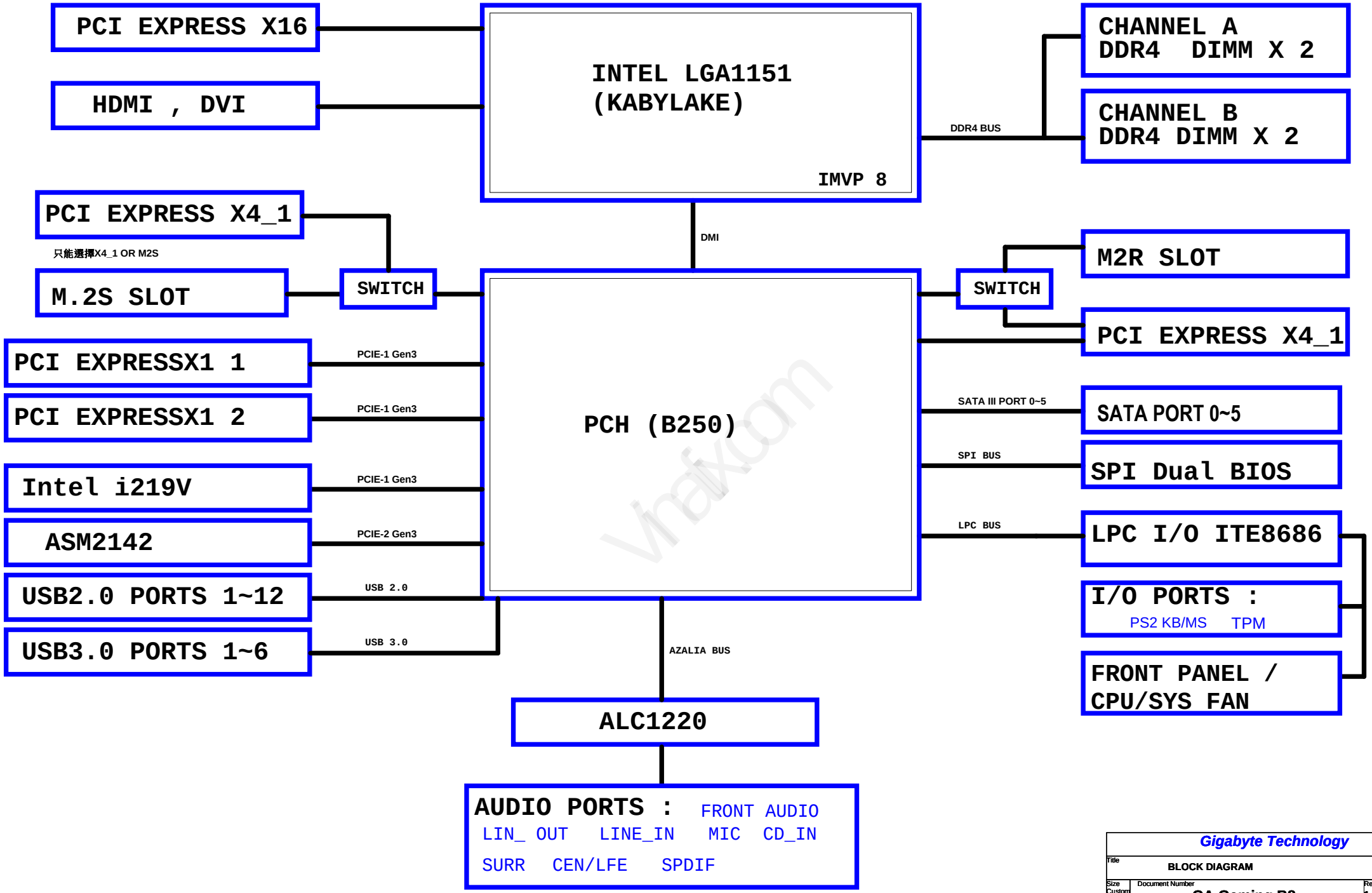
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
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From SKL_0.2B

檢查組態調整線路
The CFG signals default value of '1'

LGA1151E SKT_H4

SKL_CFG2 WR54 1K/4/1/X
SKL_CFG4 WR47 1K/4/1/X
SKL_CFG5 WR36 1K/4/1/X
SKL_CFG6 WR43 1K/4/1/X
SKL_CFG7 WR46 1K/4/1/X

* WR7 , WR1 , WR81 改 short pad

* 刪 net

5 OF 12

CPU-SK/1151/S/15/[10SC1-F01151-21R]

* 刪 net

LGA1151D SKT_H4

HDMI

DVI

4 OF 12

CPU-SK/1151/S/15/[10SC1-F01151-21R]

VCCST_VCCPLL WR2 100/4/1 PVIDSOUT
VCCST_VCCPLL WR4 56.2/4/1 -PVIDALRT
VCCST_VCCPLL WR30 51/4/1 A_-HPREQ

* 刪 WR17 , WR14 , WR10 , WR29 , WR25 , WR56 , WR55

VCCST_VCCPLL WR25 1K/4/1 A_-PHOT

* 刪 WR90

VCCST_VCCPLL WR70 1K/4/1 A_-THRMTRIP

* 刪 WR91

CPU_VCCST_PWOK
12,16,48 N_PCH_VRMPWRGD WR34 6.04K/4/1 WR3 2.8K/4/1

* 刪 net N_CPU_VCCST_PWOK

A_TCK WR11 51/4/1
A_-TRST WR9 51/4/1

N_CPUPWROK WBC47 1n/4/X7R/50V/K
13 N_-CPURST WBC123 1n/4/X7R/50V/K

-CPURST

LGA1151C SKT_H4

3 OF 12

CPU-SK/1151/S/15/[10SC1-F01151-21R]

VCCIO WR80 24.9/4/1 PEG_RCOMP

PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] 19
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] 19
PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] 19
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] 19

CFG[2]:x16 Lane Numbering Reversal. 1= NORMAL;0=reversal

CFG[4]: eDP enable:1:disable/0=enable

CFG[6:5]:PCI Express* Bifurcation; 11= 1 x16 PCI Express;10=2x8 PCI Express

CFG[7]: PEG Training:1=(default) PEG Train immediately following RESET#;0=PEG Wait for BIOS

Bifurcation Config.	Signals Lanes CFG[6]	CFG[5]	CFG[2]
~~1x16~~	1	1	1
1x16 Reversed	1	1	0
2x8	1	0	1
2x8 Reversed	1	0	0
1x8+2x4	0	0	1
1x8+2x4 Reversed	0	0	0

G-15u : (CPU-SK/1151/S/15)
10SC1-F01151-11R / 10SC1-F01151-12R
G-FL : (CPU-SK/1151/S/GF)
10SC1-F01151-21R / 10SC1-F01151-22R

W=12 mil out of CPU
S=15 mil out of CPU

Gigabyte Technology

Title: CPU LGA1151-A

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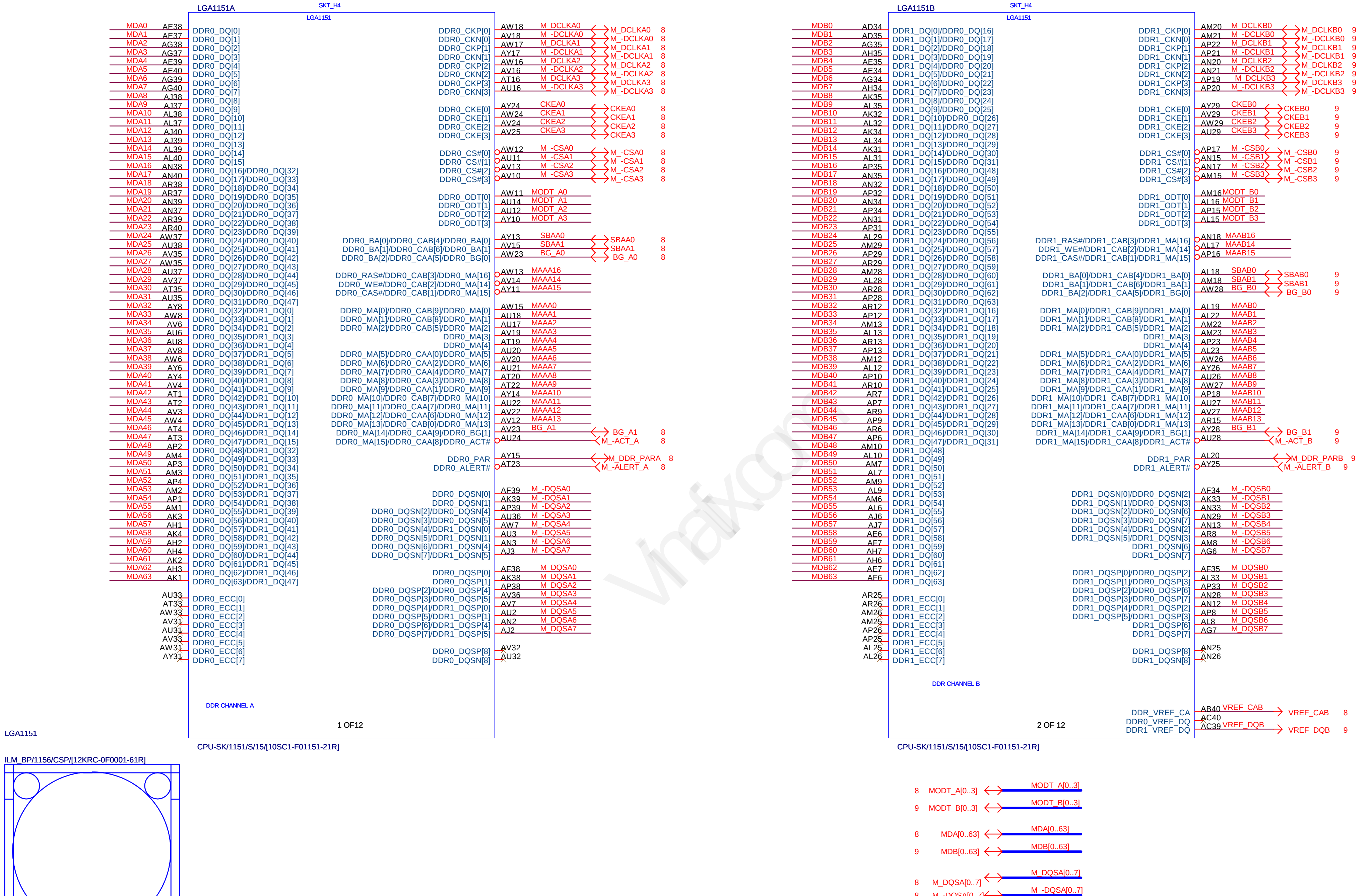

Intel CRB

Title: CPU LGA1151-B

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* WBC49 移到 RT8120_DDR

* 刪 WBC50 電容

VCCSA

* WBC51 , WBC52
VDDQ 改 VCCSA

WBC56 22u/8/X5R/6.3V/M — WBC57 — WBC51 — WBC52

MASK/22u/8/X5R/6.3V/M/X — MASK/22u/8/X5R/6.3V/M/X — MASK/22u/8/X5R/6.3V/M/X

* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

* WR94 , WR59 , WR86 , WR60 ,
WR61 , WR62 , WR63 改 short pad

VCCSFUSEPRG — VCCST_VCCPLL

VCCSA — WR94 0/4/X — VCCST_VCCPLL

0624

VCCIO

WBC69 — WBC70 — WBC71 — WBC72 — WBC73 22u/8/X5R/6.3V/M — WBC74

MASK/22u/8/X5R/6.3V/M/X — MASK/22u/8/X5R/6.3V/M/X — MASK/22u/8/X5R/6.3V/M/X — MASK/22u/8/X5R/6.3V/M/X — MASK/22u/8/X5R/6.3V/M/X

* 刪 VCCGT 電容

VCCGT

LGA1151J SKT_H4 LGA1151

AA34 AA35 AA36 AA37 AA38 AB33 AB34 G36 G37 G38 G39 G40 H36 H38 H40 J36 J37 J38 J39 J40 K36 K38 K40 L34 L35 L36 L37 L38 L39 L40 M33 M34 M36 M38 M40 N34 N35 N36 N37 N38 N39 N40 P33 P34 P36 P38 P40 R34 R35 R36 R37 R38 R39 R40 T33 T34 T36 T38 T40 U34 U35 U36 U37 U38 U39 U40 V33 V34 V36 V38 V40 W34 W35 W36 W37 W38 Y33 Y34 Y36 Y38 — VCCGT

VCCGTX_F35 VCCGTX_G34 VCCGTX_G35 VCCGTX_H33 VCCGTX_H34 VCCGTX_J33 VCCGTX_J35 VCCGTX_K32 VCCGTX_K34 VCCGTX_L31 VCCGTX_L33 VCCGTX_M32 — E35 G34 G35 H33 H34 J33 J35 K32 K34 L31 L33 M32

WR59 0/4/X

VCCGT_SENSE — F39 — VCCGT_SENSE 21

VSSGT_SENSE — F38 — VSSGT_SENSE 21

VCCGTX_SENSE — F37

VSSGTX_SENSE — F36

10 OF 12

CPU-SK/1151/S/15/[10SC1-F01151-21R]

VCCSA

LGA1151K SKT_H4 LGA1151

AA7 AB6 AB7 AB8 AC7 AC8 N7 P7 R7 T7 U7 Y6 Y7 Y8 W7 V7 AA6 — VCCSA

VDDQ_AT18 VDDQ_AT21 VDDQ_AU13 VDDQ_AU15 VDDQ_AU19 VDDQ_AU23 VDDQ_AV11 VDDQ_AV17 VDDQ_AV21 VDDQ_AW10 VDDQ_AW14 VDDQ_AW25 VDDQ_AY12 VDDQ_AY16 VDDQ_AY18 VDDQ_AY23 — AT18 AT21 AU13 AU15 AU19 AU23 AV11 AV17 AV21 AW10 AW14 AW25 AY12 AY16 AY18 AY23

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 — VCCIO

VCCPLL_OC — AJ9 — VCCPLL_S — WR86 0/4/SHT/M/X — VDDQ

CPU POWER

* 刪 VCCPLL_OC

VCCOPC_AJ30 VCCOPC_AJ27 VCCOPC_AJ28 VCCOPC_AJ29 VCCOPC_AK27 — AJ30 AJ27 AJ28 AJ29 AK27

WR60 0/4/X

VCCEOPIO VCCEOPIO — AJ25 AJ26

WR61 0/4/X

VCCST_VCCPLL — V5 — VCCST_V5

VCCSFUSEPRG — V6 — VCCST_V6

VCCST_VCCPLL — V4 — VCCPLL

VCC_OPC_1P8_AB37 VCC_OPC_1P8_AB38 — AB37 AB38

WR62 0/4/SHT/M/X

WR63 0/4/SHT/M/X

VCCSA_SENSE — AD5

VCCIO_SENSE — AF4

VSS_SAIO_SENSE — AE4

* 刪 net

VCCOPC_SENSE — AK21

VCCEOPIO_SENSE — AJ24

VSSOPC_EOPIO_SENSE — AK22

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CPU-SK/1151/S/15/[10SC1-F01151-21R]

LGA1151L SKT_H4 LGA1151

J8 J7 L8 K8 — RSVD_TP_J8 RSVD_TP_J7 RSVD_TP_L8 RSVD_TP_K8

AV1 AW2 — RSVD_TP_AV1 RSVD_TP_AW2

H8 K10 L10 J17 B39 J19 C40 — RSVD_H8 RSVD_K10 RSVD_L10 RSVD_J17 RSVD_B39 RSVD_J19 RSVD_C40

G8 AY3 — RSVD_G8 RSVD_AY3

D1 B3 — PROC_TRIGIN PROC_TRIGOUT

L12 K12 — RSVD_L12 RSVD_K12

13 N_PCH_CPU_TI — WR88 33/4 — A_CPU_PCH_TO_R

13 A_CPU_PCH_TO

RSVD_TP_H11 RSVD_TP_H12 — H11 H12

RSVD_TP_AW38 RSVD_TP_AV39 — AW38 AV39

RSVD_AU39 RSVD_AU40 — AU39 AU40

VSS_AT15 VSS_AR23 VSS_AR22 — AT15 AR23 AR22

RSVD_J15 RSVD_J14 — J15 J14

RSVD_AU9 RSVD_AU10 — AU9 AU10

RSVD_J13 RSVD_K13 RSVD_J11 — J13 K13 J11

WR89 560/4/1

RSVD_D15 RSVD_K11 — D15 K11

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CPU-SK/1151/S/15/[10SC1-F01151-21R]

Gigabyte Technology

Title: CPU LGA1151-C

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* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1151-C		
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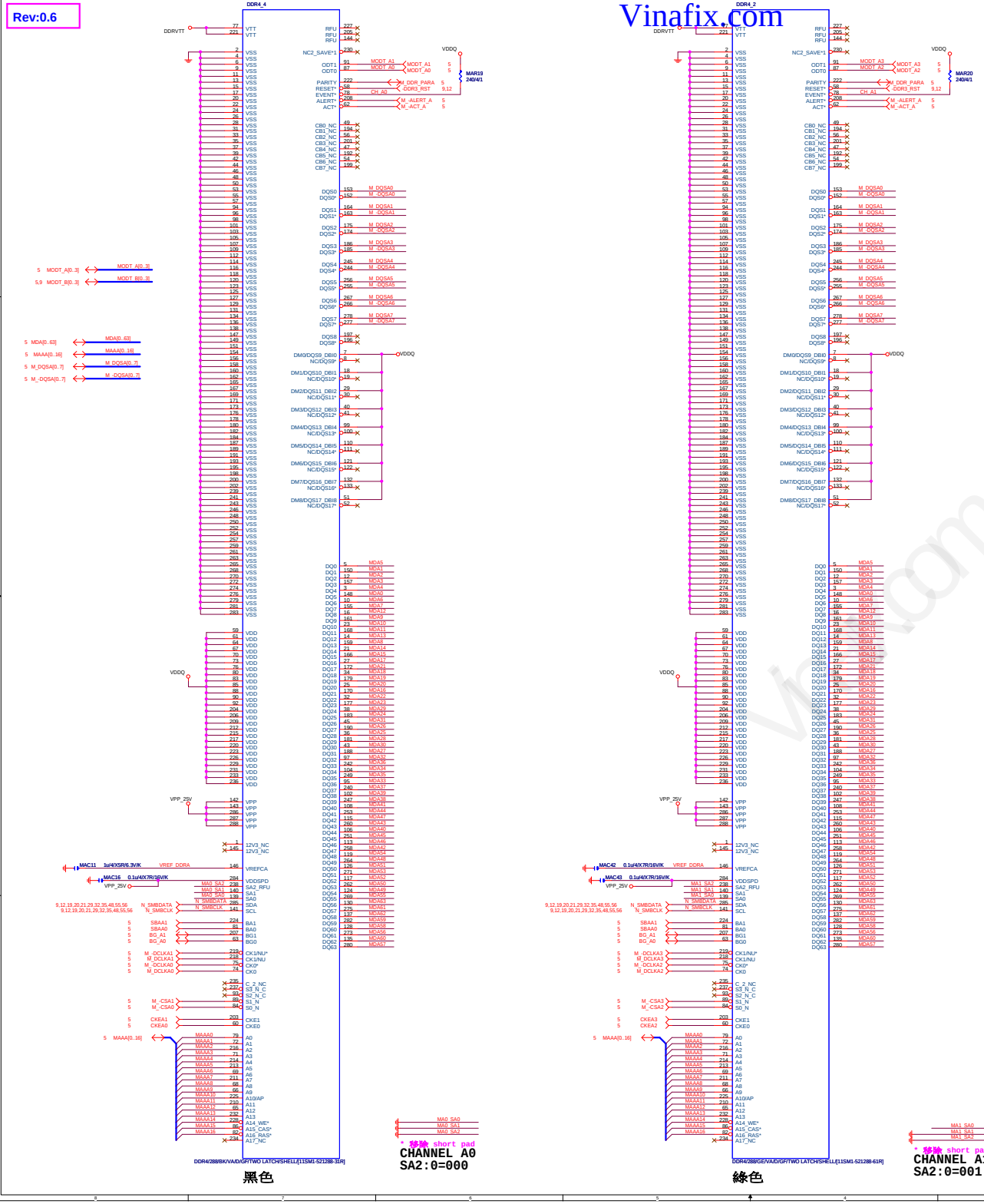
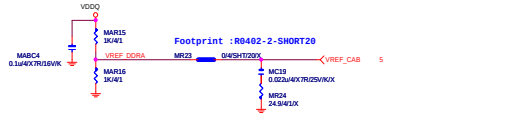
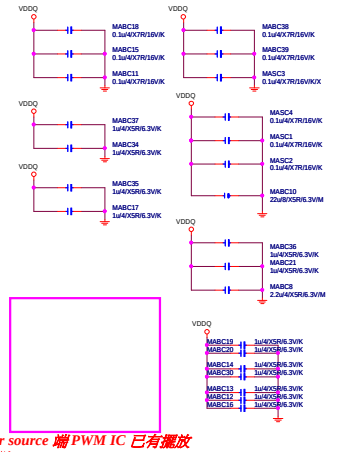
Rev:0.6



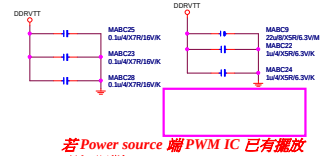


VDDQ Decouple



若 Power source 端 PWM IC 已有擺放 ,則可刪除

DDRVTT Decouple



若 Power source 端 PWM IC 已有擺放 ,則可刪除

若 Power source 端 PWM IC 已有擺放 ,則可刪除

DDR4		Capture Value
SOC series	黑色 綠色	DDR4/288/BK/VA/S/G15/4ROW/LONG DDR4/288/OR/VA/S/G15/4ROW/LONG
UD series	SMD 黑色 深灰色	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG
Gaming series	黑色 紅	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/RE/VA/D/G15/ONE LATCH/LONG
G1.Sniper	黑色 綠色	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GE/VA/D/G15/ONE LATCH/LONG

Gigabyte Technology

Title: DDR4 CHANNEL A

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Rev:0.6

DDR4_3

DDR4_1

DDRVTT

VDDQ

VPP_25V

MAR22 240/4/1

MAR23 240/4/1

MAR18 1K/4/1

MAR17 1K/4/1

MABC5 0.1u/4/X7R/16V/K

MABC6 0.1u/4/X7R/16V/K

Footprint :R0402-2-SHORT20

MAC12 0.1u/4/X7R/16V/K

MAC15 0.1u/4/X7R/16V/K

MAC44 1u/4/X5R/6.3V/K

MAC45 0.1u/4/X7R/16V/K

* 移除 short pad

CHANNEL B0
SA2:0=010

黑色

DDR4/28B/BK/VA0/GF/TWO LATCH/SHELL[11SM1-521288-31R]

CHANNEL B1
SA2:0=011

綠色

DDR4/28B/GE/VA0/GF/TWO LATCH/SHELL[11SM1-521288-61R]

Gigabyte Technology	
Title	DDR4 CHANNEL B
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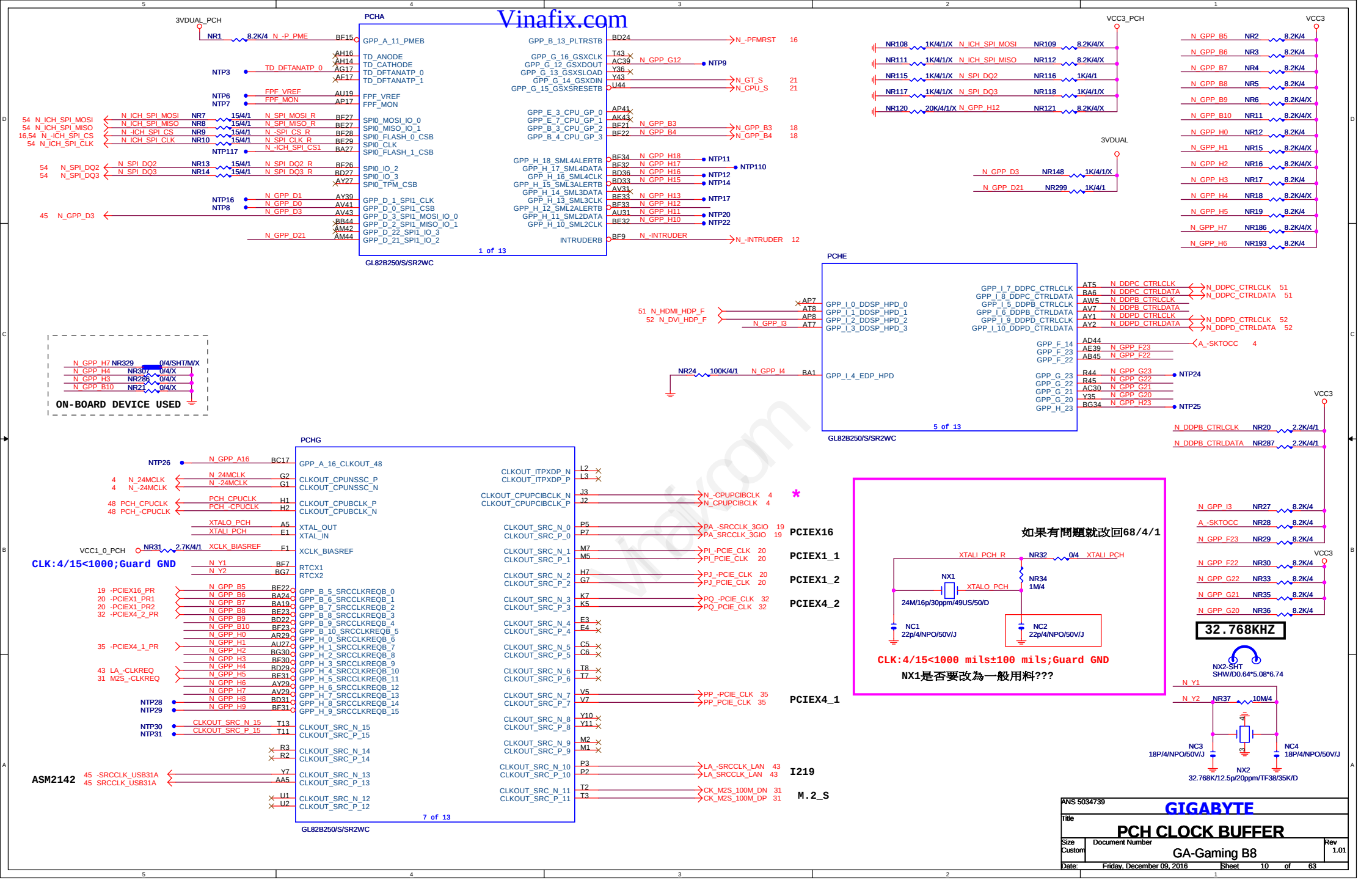

ANS 5034739	GIGABYTE
Title	PCH CLOCK BUFFER
Size: Custom	Document Number: GA-Gaming B8
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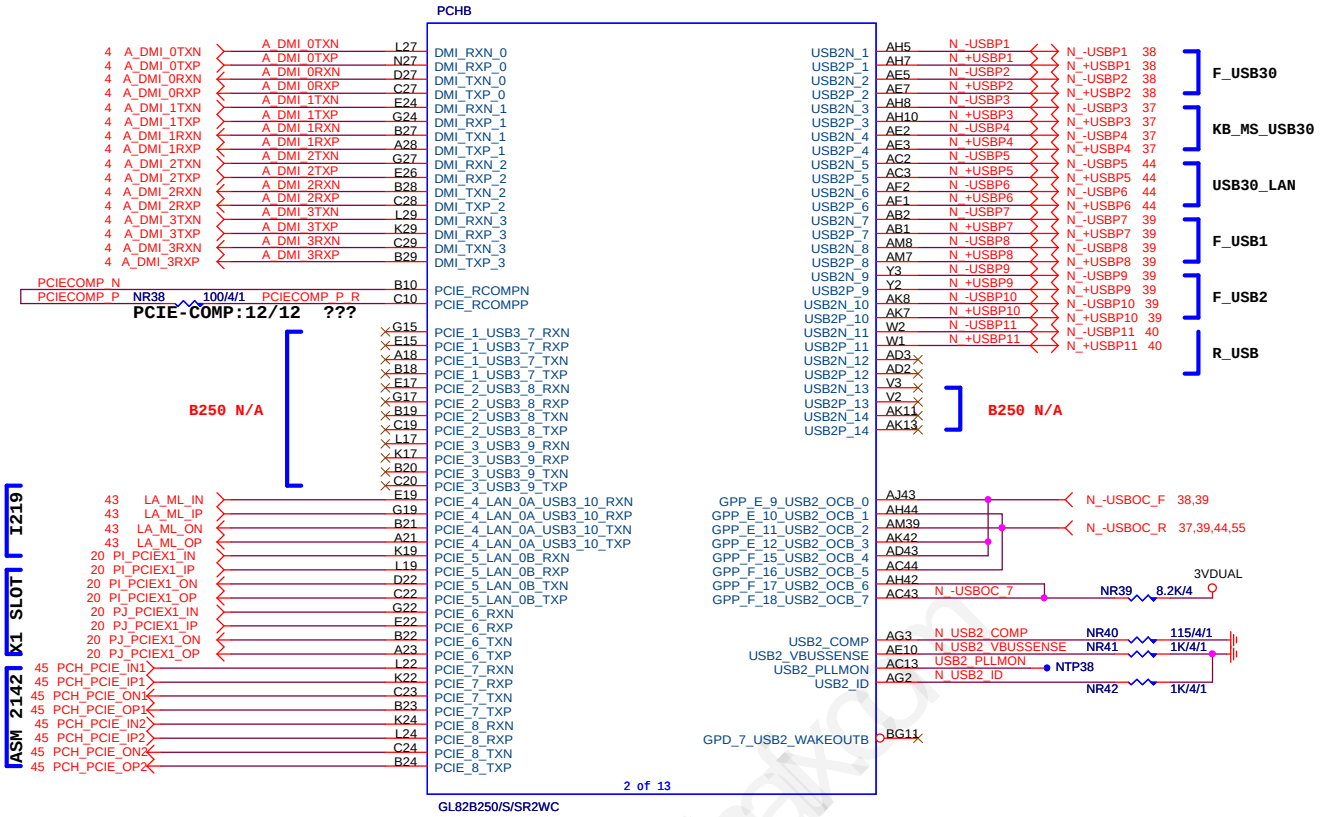

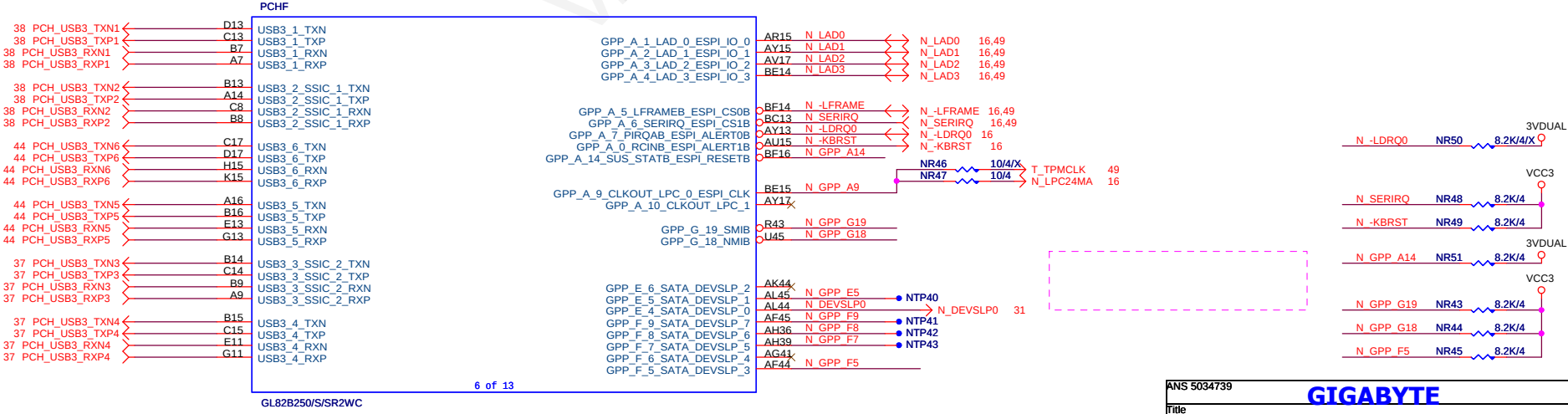

ANS 5034739	GIGABYTE	
Title	PCH DMI,USB,PCIE	
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
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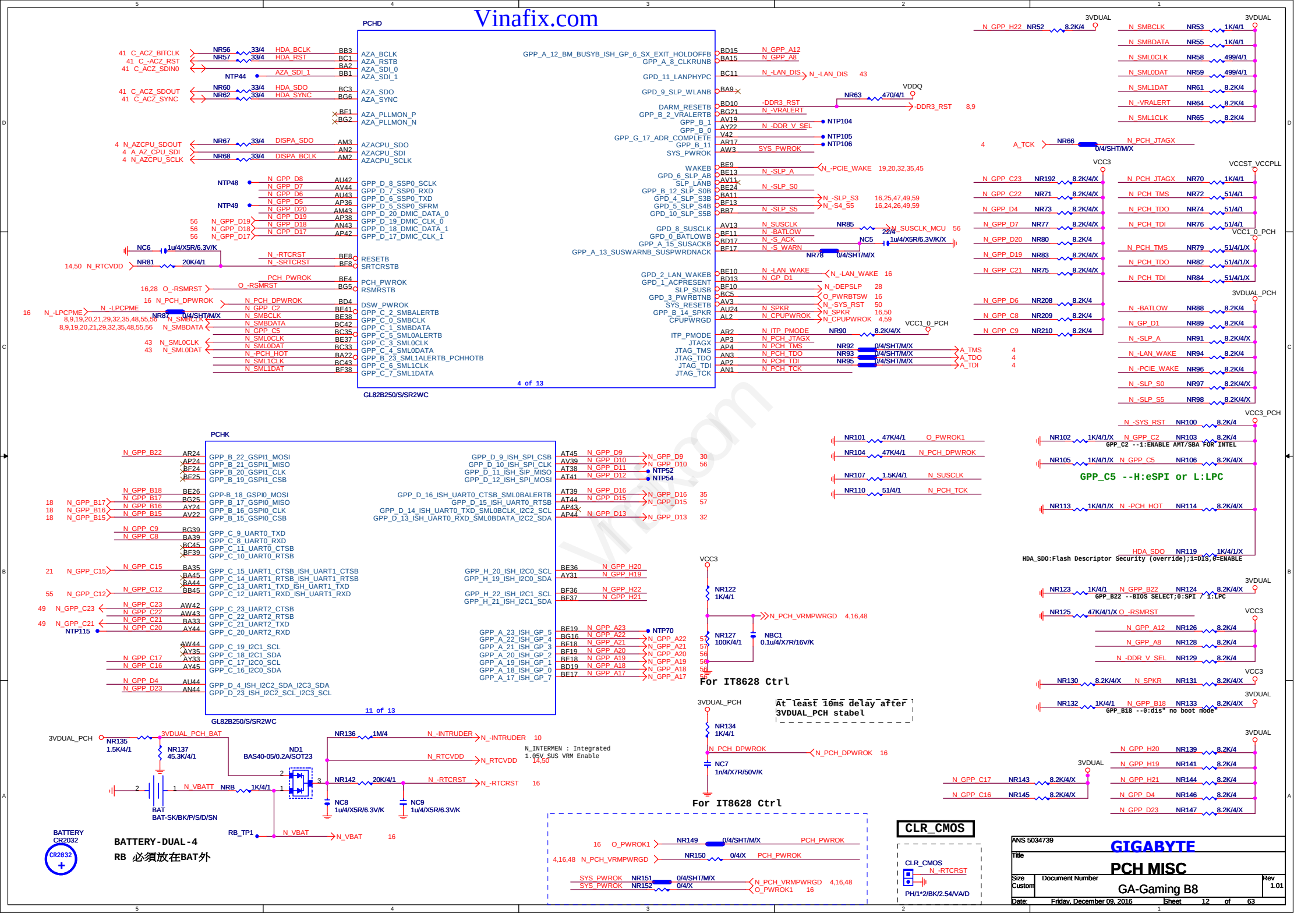
PCHD
GL82B250/S/SR2WC
4 of 13
PCHK
GL82B250/S/SR2WC
11 of 13
BATTERY-DUAL-4
RB 必須放在BAT外
For IT8628 Ctrl
For IT8628 Ctrl
At least 10ms delay after 3VDUAL_PCH stabel
GPP_C5 --H:eSPI or L:LPC
HDA_SDO:Flash Descriptor Security (override);1=DIS,0=ENABLE
GPP_C2 --1:ENABLE AMT/SBA FOR INTEL
GPP_B22 --BIOS SELECT;0:SPI / 1:LPC
GPP_B18 --0:dis" no boot mode"
N_INTERMEN : Integrated 1.05V_SUS VRM Enable
CLR_CMOS
PH1*2/BK/2.54/VA/D
ANS 5034739
GIGABYTE
PCH MISC
GA-Gaming B8
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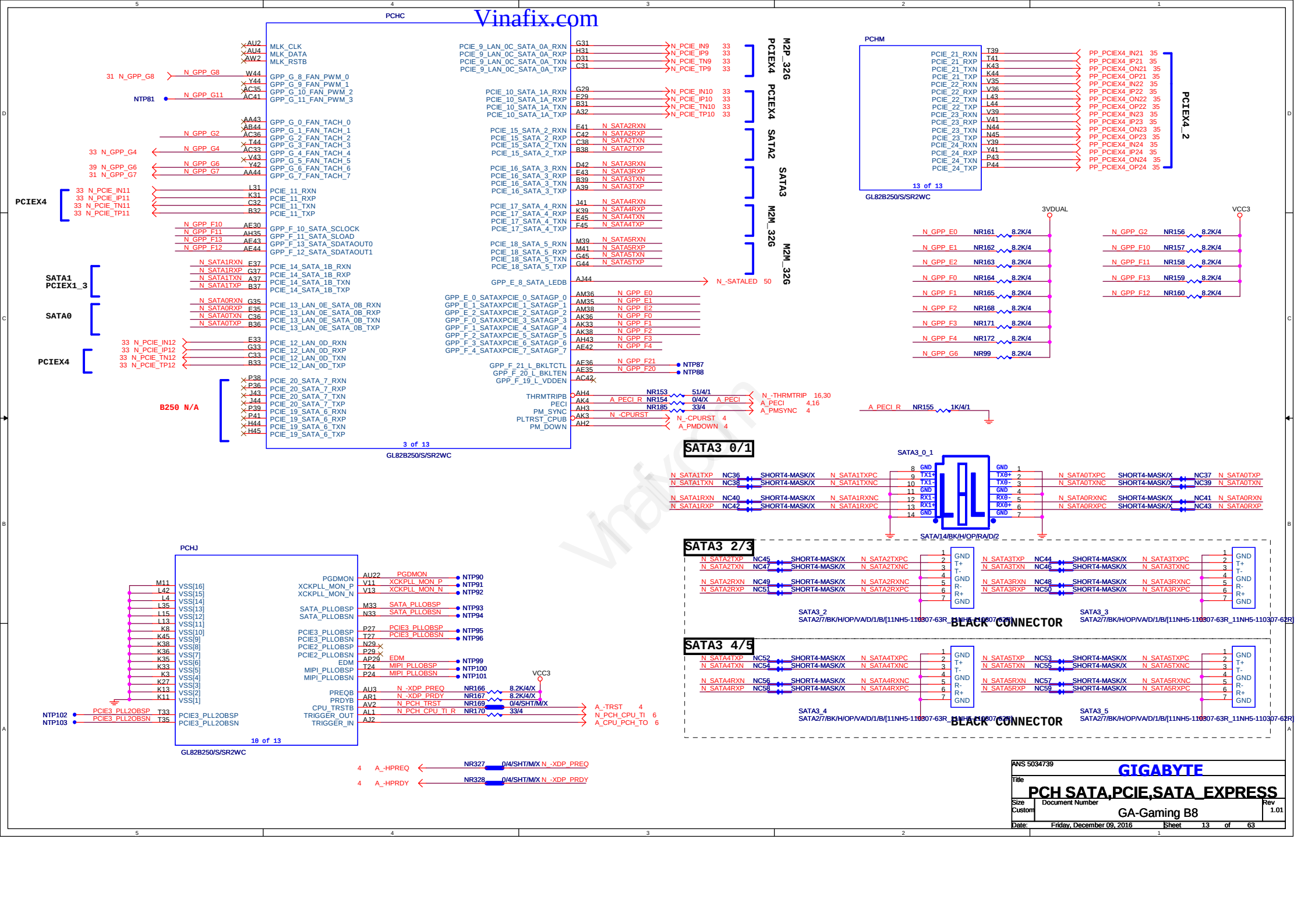

ANS	5034739
Title	PCH SATA,PCIE,SATA_EXPRESS
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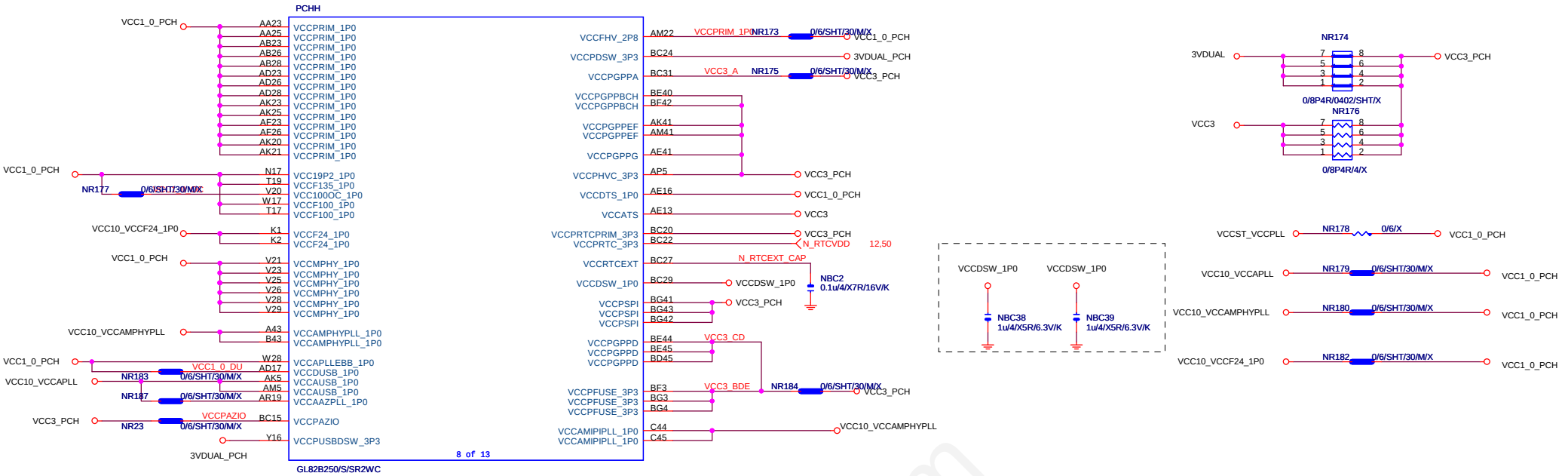
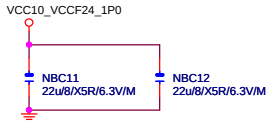
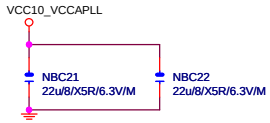
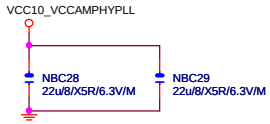
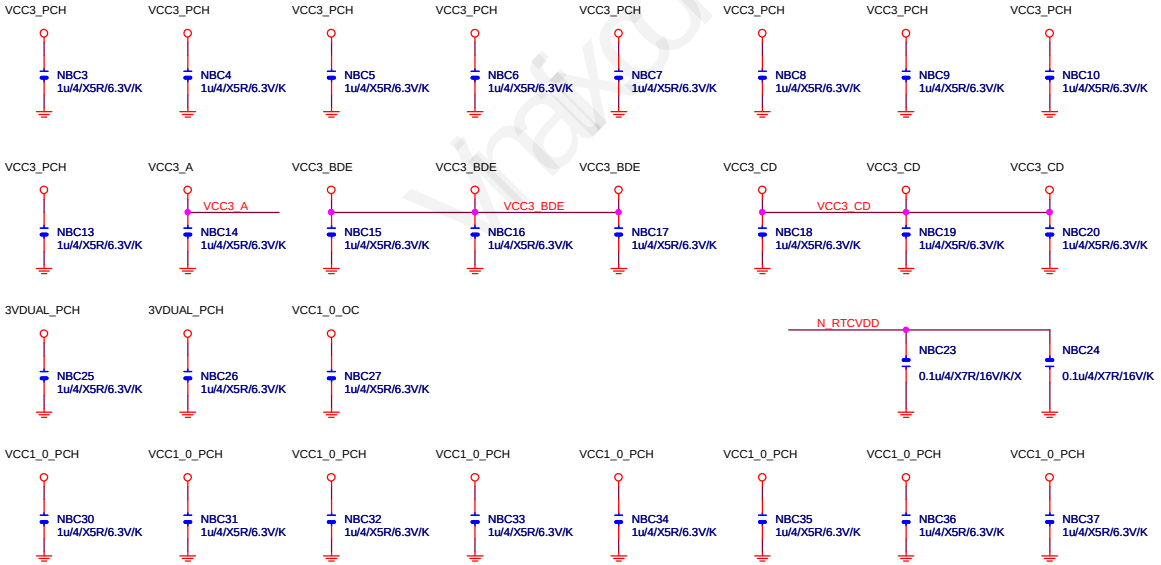
GIGABYTE











ANS 5034739

GIGABYTE

Title: PCH PWR

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PCHI

A25	VSS	VSS	A42
A30	VSS	VSS	D45
P22	VSS	VSS	BG44
AV38	VSS	VSS	BF44
AV45	VSS	VSS	BF45
AV8	VSS	VSS	BF2
AY11	VSS	VSS	W29
AY19	VSS	VSS	A35
AY37	VSS	VSS	A40
AY4	VSS	VSS	A41
AY42	VSS	VSS	AA17
AY8	VSS	VSS	AA18
B25	VSS	VSS	AA20
B3	VSS	VSS	AA21
B30	VSS	VSS	AA26
B35	VSS	VSS	AA28
B4	VSS	VSS	AA29
B41	VSS	VSS	AB17
BA13	VSS	VSS	AC32
BA17	VSS	VSS	AE4
BA29	VSS	VSS	AE8
BA31	VSS	VSS	AF18
BA37	VSS	VSS	AF20
BA4	VSS	VSS	AF21
BA42	VSS	VSS	AF25
BB40	VSS	VSS	AF28
BC38	VSS	VSS	AF29
BC40	VSS	VSS	AF4
BC9	VSS	VSS	AF42
BD11	VSS	VSS	AG18
BD16	VSS	VSS	AG20
BD2	VSS	VSS	AG21
BD21	VSS	VSS	AG23
BD25	VSS	VSS	AG25
F2	VSS	VSS	AG26
E31	VSS	VSS	AG28
E6	VSS	VSS	AG29
E8	VSS	VSS	AH11
F39	VSS	VSS	AH13
F43	VSS	VSS	AH30
G4	VSS	VSS	AH32
G40	VSS	VSS	AH33
G42	VSS	VSS	AH38
F6	VSS	VSS	AJ1
G9	VSS	VSS	AJ17
H11	VSS	VSS	AJ18
H13	VSS	VSS	AJ20
H17	VSS	VSS	AJ21
H19	VSS	VSS	AJ23
H22	VSS	VSS	AJ25
H24	VSS	VSS	AJ26
H27	VSS	VSS	AJ28
H29	VSS	VSS	AJ29
H33	VSS	VSS	AJ45
H35	VSS	VSS	AK10
H38	VSS	VSS	AK14
H4	VSS	VSS	AK16
H42	VSS	VSS	AK17
H9	VSS	VSS	AK18
J4	VSS	VSS	AK26
M36	VSS	VSS	AK28
M38	VSS	VSS	AM14
M4	VSS	VSS	AN14
M8	VSS	VSS	AP19
M9	VSS	VSS	AR22
N13	VSS	VSS	AR27
N15	VSS	VSS	AU29
N19	VSS	VSS	AU33
N22	VSS	VSS	AV1
N24	VSS	VSS	AV10
N31	VSS	VSS	AV15
N42	VSS	VSS	AV24
P10	VSS	VSS	AV27
P12	VSS	VSS	AV33
AV35	VSS	VSS	

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GL82B250/S/SR2WC

PCHL

BD34	VSS[70]	VSS[1]	AB18
BD39	VSS[71]	VSS[2]	AB20
BD7	VSS[72]	VSS[3]	AB21
BE2	VSS[73]	VSS[4]	AB25
BF43	VSS[74]	VSS[5]	AB29
BF5	VSS[75]	VSS[6]	AB4
BG18	VSS[76]	VSS[7]	AB42
BG23	VSS[77]	VSS[8]	AC10
BG28	VSS[78]	VSS[9]	AC11
BG32	VSS[79]	VSS[10]	AC14
BG37	VSS[80]	VSS[11]	AC16
BG40	VSS[81]	VSS[12]	AC38
BG9	VSS[83]	VSS[13]	AC4
C1	VSS[84]	VSS[14]	AC5
A12	VSS[85]	VSS[15]	AC7
C2	VSS[86]	VSS[16]	AC8
C37	VSS[87]	VSS[17]	AD1
A6	VSS[88]	VSS[18]	AD18
C9	VSS[89]	VSS[19]	AD20
D1	VSS[90]	VSS[20]	AD21
D10	VSS[91]	VSS[21]	AD25
D12	VSS[92]	VSS[22]	AD29
D15	VSS[93]	VSS[23]	AD45
D16	VSS[94]	VSS[24]	AE11
B12	VSS[95]	VSS[25]	AE14
D19	VSS[96]	VSS[26]	AE32
D21	VSS[97]	VSS[27]	AE33
D24	VSS[98]	VSS[28]	AE38
D25	VSS[99]	VSS[29]	AK29
D29	VSS[100]	VSS[30]	AK30
D30	VSS[101]	VSS[31]	AK32
D33	VSS[102]	VSS[32]	AK35
D35	VSS[103]	VSS[33]	AK39
D36	VSS[104]	VSS[34]	AL4
D39	VSS[105]	VSS[35]	AL42
D44	VSS[106]	VSS[36]	AM10
D7	VSS[107]	VSS[37]	AM11
P13	VSS[108]	VSS[38]	AM13
P15	VSS[109]	VSS[39]	AM17
P17	VSS[110]	VSS[40]	AM19
P19	VSS[111]	VSS[41]	AM24
P31	VSS[112]	VSS[42]	AM27
P33	VSS[113]	VSS[43]	AM29
P35	VSS[114]	VSS[44]	AM32
P4	VSS[115]	VSS[45]	AM33
P42	VSS[116]	VSS[46]	AM4
P8	VSS[117]	VSS[47]	AN45
R1	VSS[118]	VSS[48]	AP10
R32	VSS[119]	VSS[49]	AP11
T10	VSS[120]	VSS[50]	AP13
T14	VSS[121]	VSS[51]	AP15
T22	VSS[122]	VSS[52]	AP22
T29	VSS[123]	VSS[53]	AP27
T32	VSS[124]	VSS[54]	AP31
T36	VSS[125]	VSS[55]	AP33
T38	VSS[126]	VSS[56]	AP34
Y38	VSS[151]	VSS[57]	AP39
Y4	VSS[152]	VSS[127]	T4
Y8	VSS[153]	VSS[143]	W26
T42	VSS[154]	VSS[128]	V16
T5	VSS[155]	VSS[129]	V17
U4	VSS[156]	VSS[130]	V18
U42	VSS[157]	VSS[131]	V30
V10	VSS[158]	VSS[132]	V32
V14	VSS[159]	VSS[133]	V33
W3	VSS[144]	VSS[134]	V38
AR13	VSS[58]	VSS[135]	V4
AR31	VSS[59]	VSS[136]	V8
AR33	VSS[60]		
AR4	VSS[61]	VSS[138]	W18
AT10	VSS[62]	VSS[139]	W20
AT13	VSS[63]	VSS[140]	W21
AT35	VSS[64]	VSS[141]	W23
AT37	VSS[65]	VSS[142]	W25
AT42	VSS[66]		
AU11	VSS[67]	VSS_1	A44
AU17	VSS[68]	VSS_10	BE1
BD30	VSS[69]	VSS_11	BD1
W45	VSS[145]	VSS_14	B1
Y13	VSS[146]	VSS_15	A2
Y14	VSS[147]	VSS_16	B2
Y30	VSS[148]	VSS_17	A3
Y32	VSS[149]	VSS_18	A4
Y33	VSS[150]	VSS_2	B44
BG14	VSS_BG14	VSS_3	B45

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GL82B250/S/SR2WC

装甲HEATSINK 分成四大部份

RMOS

1X

X2

Footprint :
MOSHSINK-SNIPERB8-R

HEAT SINK/[12SP2-S08025-61R_12SP2-S08025-62R_12SP2-S08025-63R]

TMOS

1X

X2

Footprint :
MOSHSINK-SNIPERB8-T

HEAT SINK/[12SP2-S09425-L1R_12SP2-S09425-L2R_12SP2-S09425-L3R]

PCH_HS

1X

X2

Footprint :BGAHSINK-SNIPER_B7

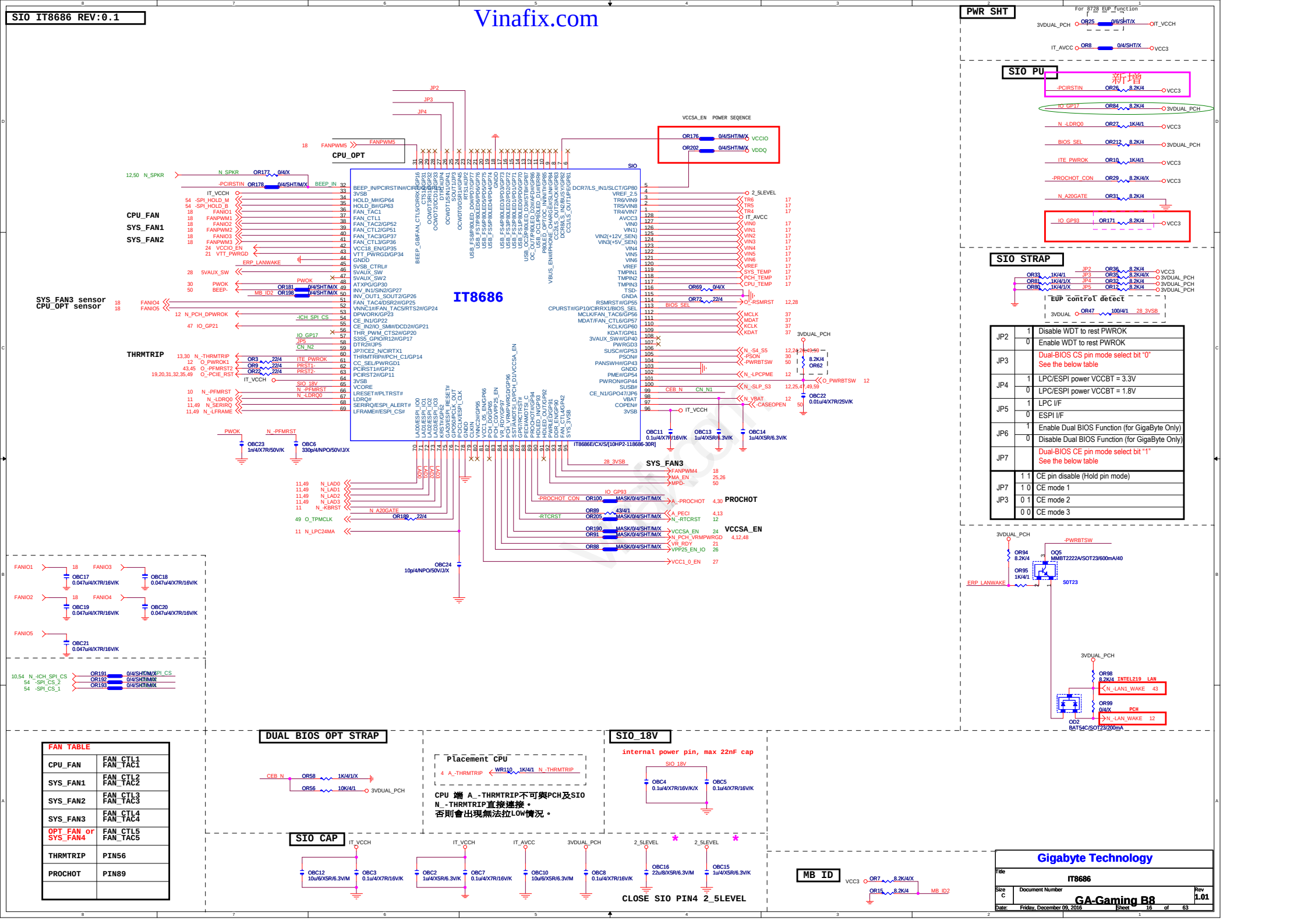
HEAT SINK/[12SP2-S05511-51R_12SP2-S05511-52R_12SP2-S05511-53R]

SSAC3

RUBBER/[12KRH-041017-01R]

Footprint :
Z270X-AUDIO_COVER

ANS 5034739	GIGABYTE		
Title	PCH GND		
Size: Custom	Document Number: GA-Gaming B8		Rev: 1.01
Date: Friday, December 09, 2016	Sheet 15 of 63		



FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89

JP2	1	Disable WDT to rest PWROK
	0	Enable WDT to rest PWROK
JP3		Dual-BIOS CS pin mode select bit "0" See the below table
JP4	1	LPC/ESPI power VCCBT = 3.3V
	0	LPC/ESPI power VCCBT = 1.8V
JP5	1	LPC I/F
	0	ESPI I/F
JP6	1	Enable Dual BIOS Function (for GigaByte Only)
	0	Disable Dual BIOS Function (for GigaByte Only)
JP7		Dual-BIOS CE pin mode select bit "1" See the below table
JP7 JP3	1 1	CE pin disable (Hold pin mode)
	1 0	CE mode 1
	0 1	CE mode 2
	0 0	CE mode 3

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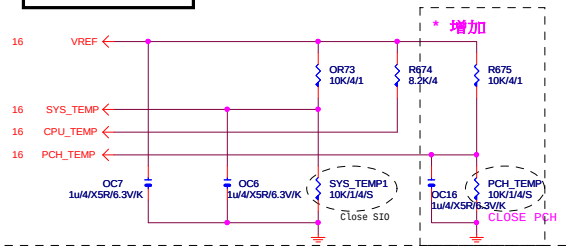
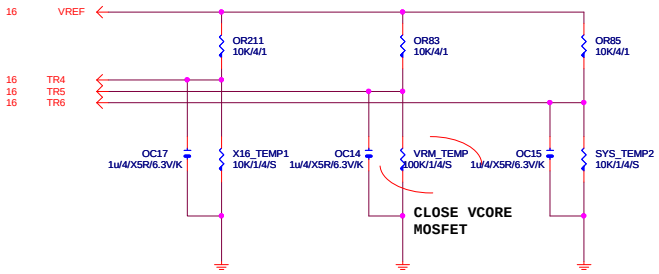
Gigabyte Technology

TEMP H/W MONITOR



5個FAN時使用

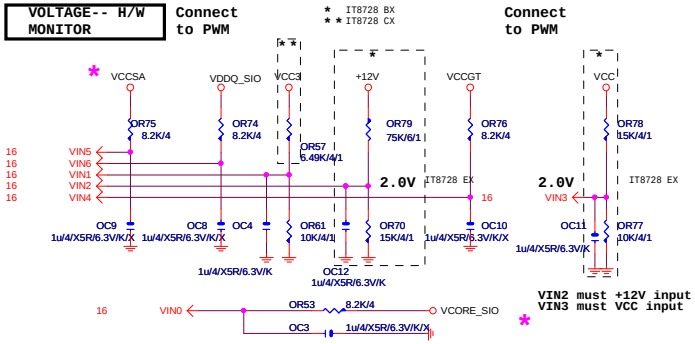


VOLTAGE-- H/W MONITOR

Connect to PWM

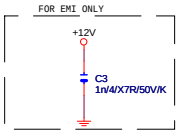
* IT8728 BX
* * IT8728 CX

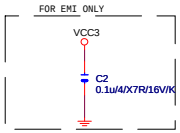
Connect to PWM



VIN2 must +12V input
VIN3 must VCC input

The division voltage of VIN2 & VIN3 must be around 2.9V





★Update 2015-04.24

Gigabyte Technology			
Title: HWM,KB/MS, FAN CTRL			
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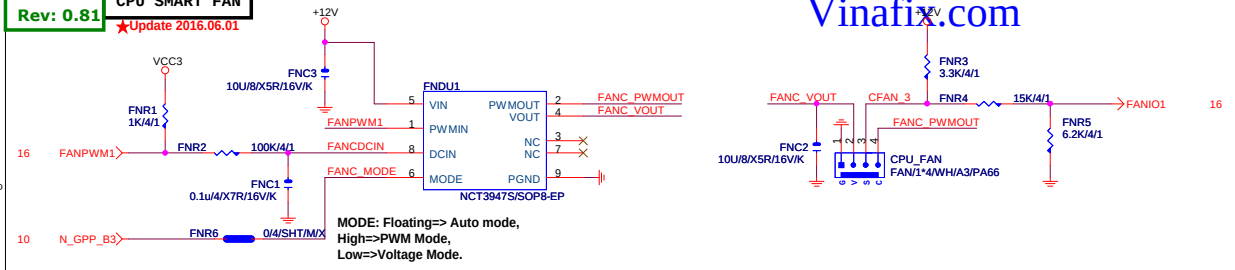
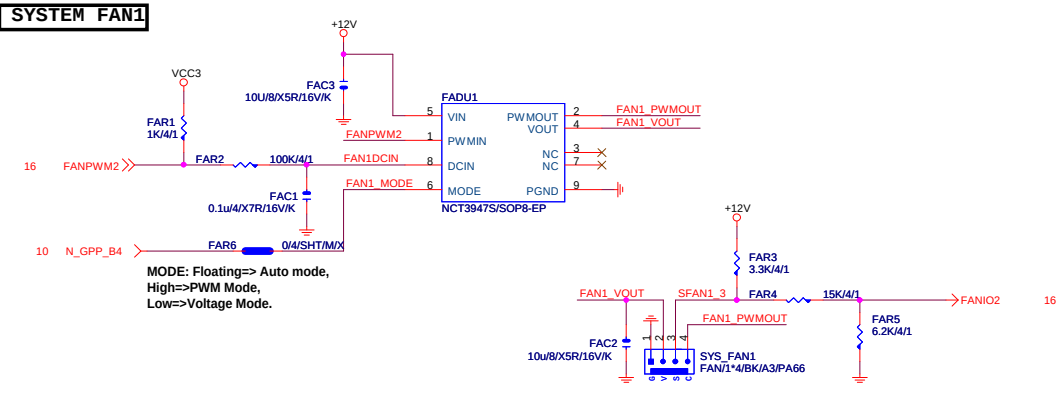
Rev: 0.81

CPU SMART FAN

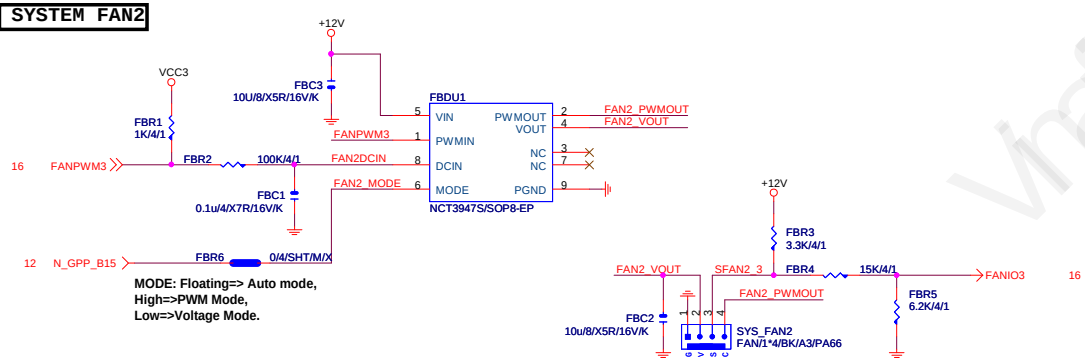
★Update 2016.06.01



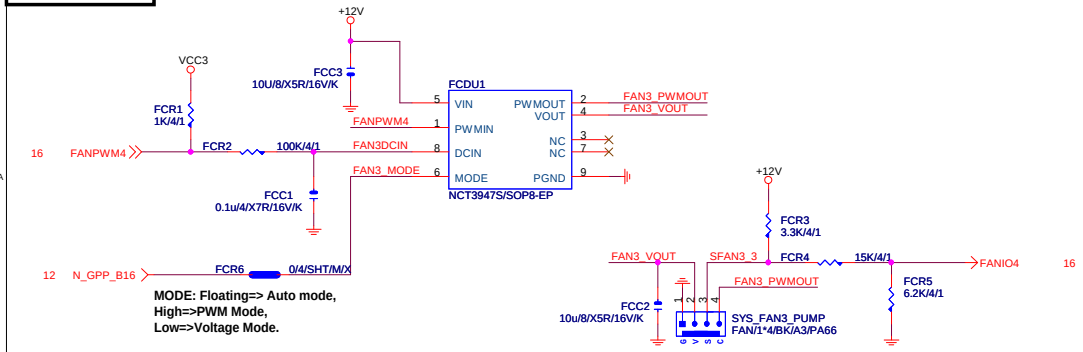
SYSTEM FAN1



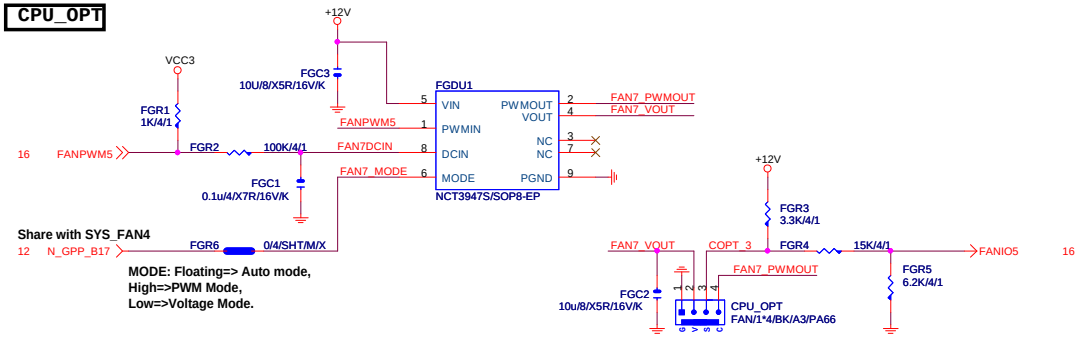
SYSTEM FAN2

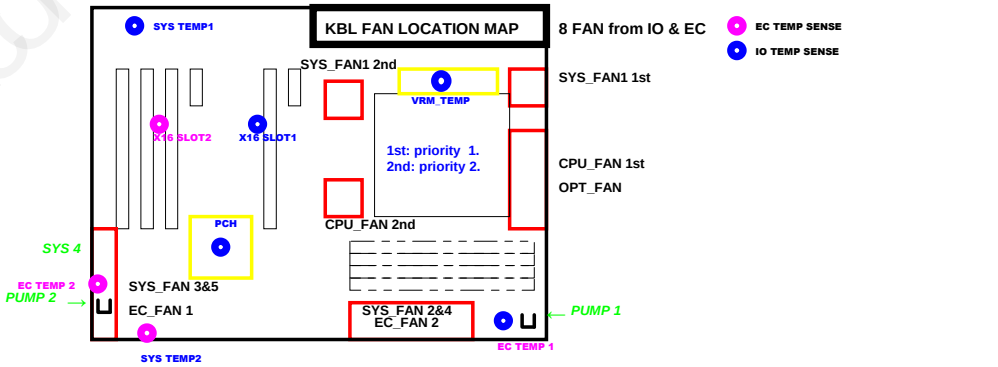


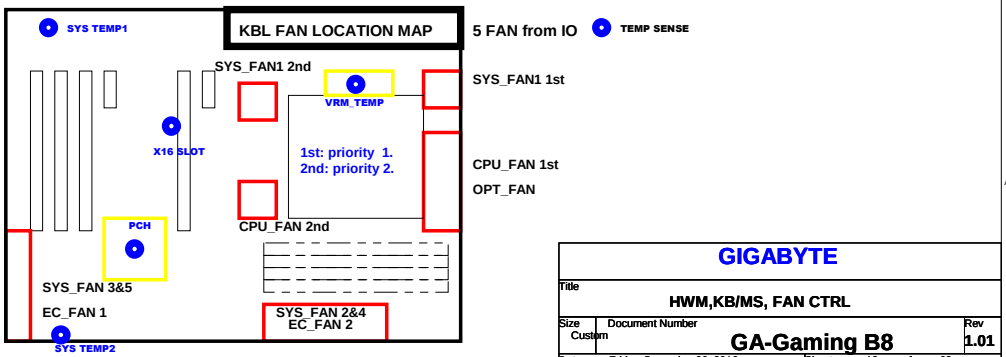
SYSTEM FAN3



CPU_OPT







GIGABYTE		
Title	HWM,KB/MS, FAN CTRL	
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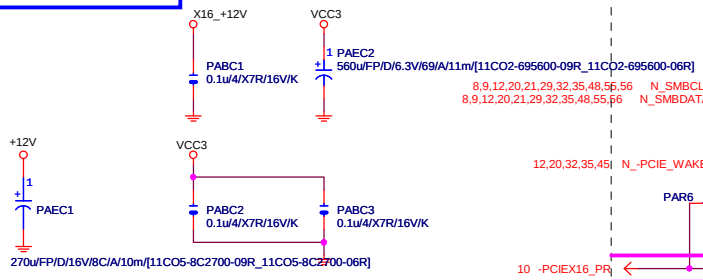
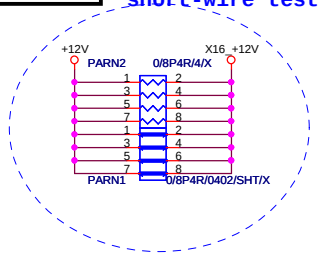
Rev 0.3

PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_TXP8_C
PA_EXP_TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_TXN8_C
PA_EXP_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_TXP9_C
PA_EXP_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_TXN9_C
PA_EXP_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_TXP10_C
PA_EXP_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_TXN10_C
PA_EXP_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_TXP11_C
PA_EXP_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_TXN11_C
PA_EXP_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_TXP12_C
PA_EXP_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_TXN12_C
PA_EXP_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_TXP13_C
PA_EXP_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_TXN13_C
PA_EXP_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_TXP14_C
PA_EXP_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_TXN14_C
PA_EXP_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_TXP15_C
PA_EXP_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_TXN15_C

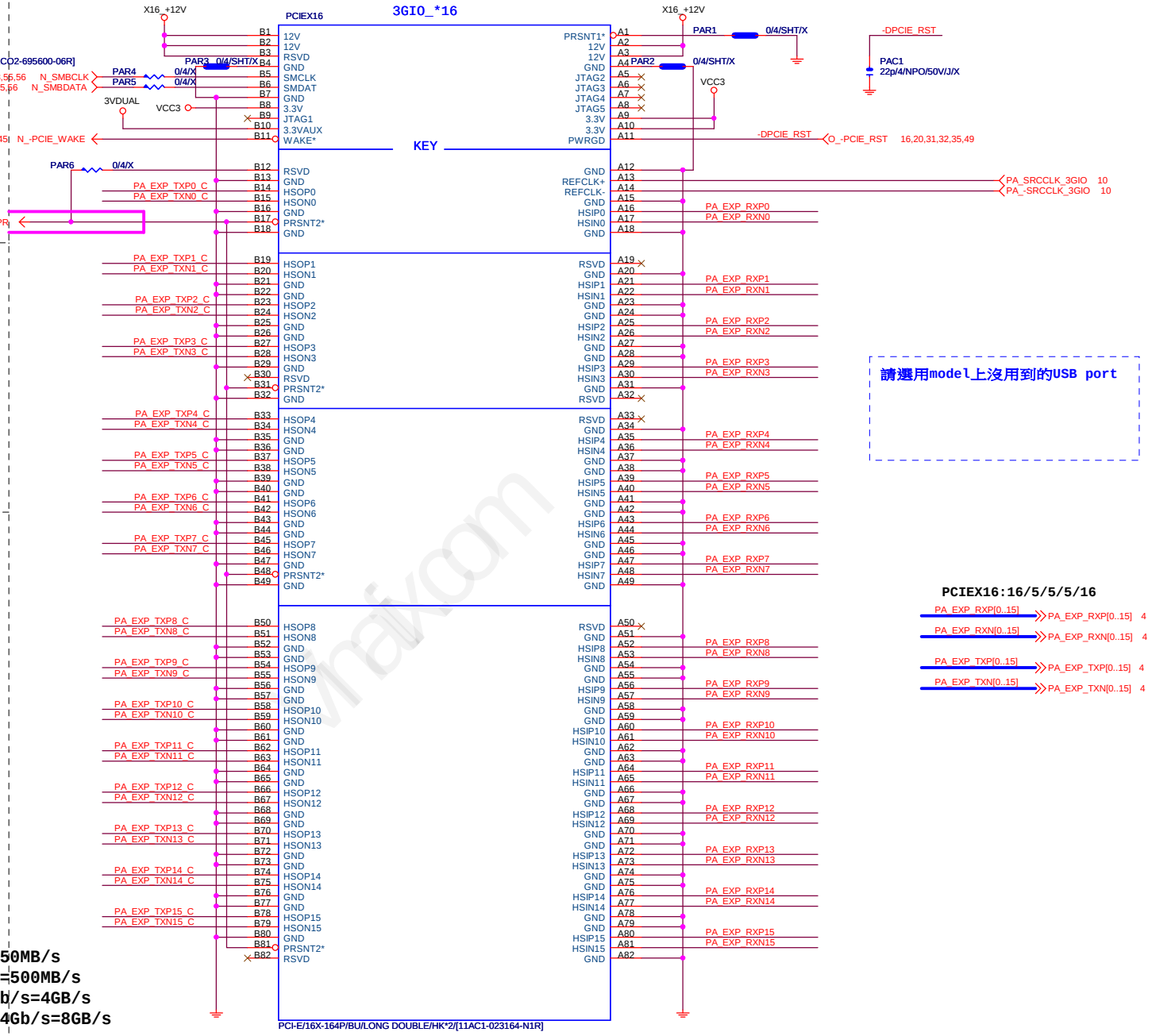
PCI-E REV:1.1--> 2.5GHZ
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ
PCE-E X1(單向) BANDWITH=5GHz*(8b/10b)=4Gb/s=500MB/s

PCI-E REV:3.0--> 8GHZ
PCE-E X1(單向) BANDWITH=8GHz*(128b/130b)=8Gb/s=1GB/s

PCIEX16 SLOT

PCIESLOT-164STH



請選用model上沒用到的USB port

PCIEX16:16/5/5/5/16

PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] 4
PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] 4
PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] 4
PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] 4

綠色金屬加強

Gigabyte Technology			
Title: PCI EXPRESS * 16			
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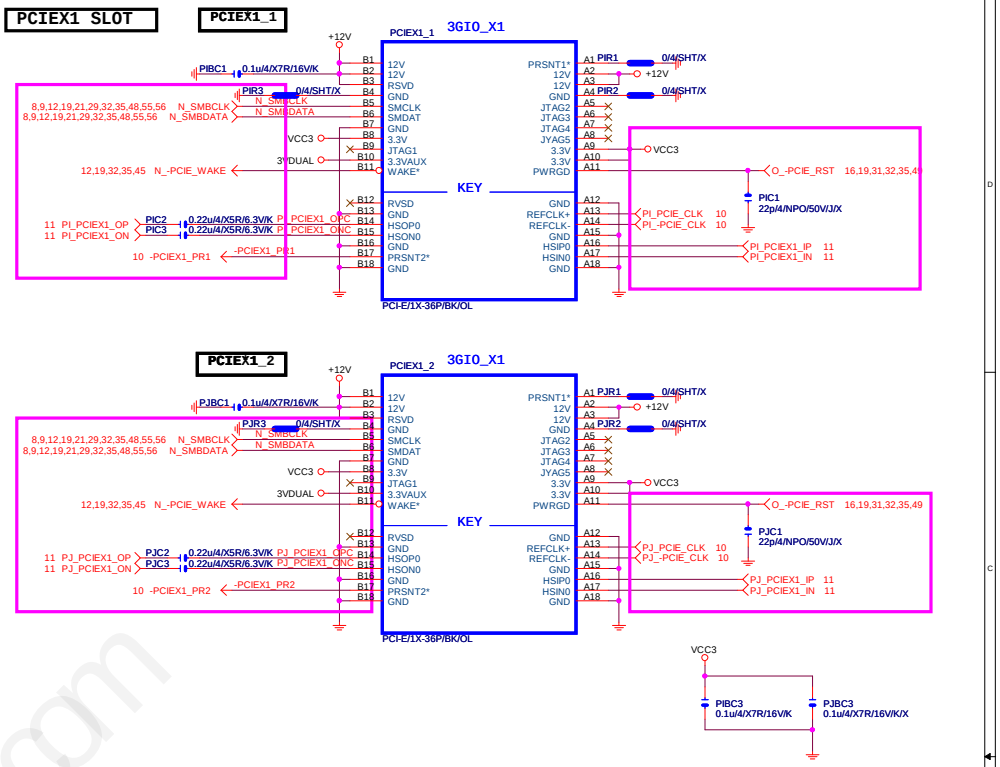
Rev 0.3



Gigabyte Technology		
Title: PCIE_X1 1,2		
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REV:0.2

Vinafix.com

VCORE_SIO — VCORE_VS — VCORE
MASK/0/4/SHT/M/X
請注意擺放位置

+12V — DAR128 8.2K/4 — DAQ5 2N7002/SOT23/25pF/5 — SOT23 — 5VDUAL — V_95856

H:ISL95856 or ISL95858
L:ISL95866 or ISL95868
3VDUAL — NR400 8.2K/4 — N_GPP_C15 12 — NR401 8.2K/4X
close to PCH

VCCST_VCCPLL — DAC40 1u/4/X5R/6.3V/K — DAR12 100/4/1 — DAR13 100/4/1X — DAR14 45.3/4/1 — DAR17 2K/4/1X 不上件 — VCCST_VCCPLL — VCC3 — DAR18 2K/4/1 — VIN — DAR19 10K/4/1
VCC — DAR7 2.2/6/X — DAR8 2.2/6/X — DAR9 2.2/6 — DAC2 1u/4/X5R/6.3V/K — DAC3 1u/6/X7R/16V/K — 95856 VDDP
DAR23 3.3K/4/1 — DAU1 — VDD — VDDP
DAC41 ISL95856_VIN 0.22u/6/X7R/16V/K

16 VTT_PWRGD — DAR136 MASK/0/4/SHT/M/10/X
16 VR_RDY — 30 VR_HOT — VR_ENABLE — VR_READY — VR_HOT#
4 PVIDSLCK — DAR76 49.9/4/1 — PVIDSLCK_R — SCLK
4 -PVIDALRT — DAR77 MASK/0/4/SHT/M/10/X — -PVIDALRT_R — ALERT#
4 PVIDSOUT — DAR78 10/4 — PVIDSOUT_R — SDA
12,19,20,29,32,35,48,55,56 N_SMBDATA — I2DATA
9,12,19,20,29,32,35,48,55,56 N_SMBCLK — I2CLK
PSYS

DC-LL --> 2.1mohm
DAR34 8.2K/4 — DAC10 680p/4/X7R/50V/K — DAR137 0/4 — DAR33 205K/4/1/X — DAR37 3.74K/4/1 — DAR35 3.3K/4/1 — DAC8 4.7n/4/x7r/25V/K
VCORE — DAC14 330p/4/NPO/50V/J — DAR40 1K/4/1 — DAR138 0/4/X — DAC11 47p/4/NPO/50V/J — COMP_A
DAR39 100/4/1 — DAR41 5.49K/4/1 — FB_CPU — FB_A
7 VCORE_VCC_SEN — DAC15 0.022u/4/X7R/25V/K/X — DAR79 100/4/1/X — FB2_A — FB2_A
7 VCORE_VSS_SEN — DAC38 330p/4/NPO/50V/J — RTN_A
VCORE — DAR46 100/4/1 — DAC17 330p/4/NPO/50V/J — DAC18 4.7n/4/X7R/25V/K — DAR139 205K/4/1
close PWM — DAR129 100/4/1 — VCCGT — DAR130 100/4/1

DC-LL --> 3.1mohm
DAR140 0/4 — DAR51 63.4K/4/1/X — DAC23 1n/4/X7R/50V/K — DAR57 1.74K/4/1 — DAR55 1.74K/4/1 — DAC22 8.2n/4/X7R/16V/K
VCCGT — DAC26 220p/4/NPO/50V/J — DAR61 1K/4/1 — DAR141 0/4/X — DAC24 47p/4/NPO/50V/J — COMP_B
DAR60 100/4/1 — DAR63 4.7K/4/1 — FB_GT — FB_B
6 VCCGT_SENSE — DAC27 0.022u/4/X7R/25V/K/X — DAR80 100/4/1/X — FB2_B — FB2_B
6 VSSGT_SENSE — DAC39 330p/4/NPO/50V/J — RTN_B
DAR66 100/4/1 — DAC29 330p/4/NPO/50V/J — DAC30 4.7n/4/X7R/25V/K — DAR142 63.4K/4/1

PROG_R 10 — DAR70 2.87K/4/1 — PROG
GND_PAD — 53 — 8 VIA Connect GND lay
ISL95866HRZ-T/QFN52

VIN — ISL95856_VIN
BOOT1_A — DAR26 2.2/6 — DAC5 0.22u/6/X7R/16V/K — UGATE1_A — PHASE1_A — LGATE1_A — PHASE1_A 22
BOOT2_A — DAR31 2.2/6 — DAC7 0.22u/6/X7R/16V/K — UGATE2_A — PHASE2_A — LGATE2_A — PHASE2_A 22
PWM3_A — PWM4_A — NC/PWM4_A
ISEN1_A — ISEN2_A — ISEN3_A — NC/ISEN4_A
ISUMP_A — ISUMN_A — NTC_A — IMON_A

DAR44-->604 ohm
OCP-->160A
VSUMA+ — DAR36 1K/4/1 — DANTC1 10K/1/4/S — VSUMA-
DAC12 0.33u/4/X5R/6.3V/K — DAC13 0.47u/4/X5R/6.3V/K — DAR38 33K/4/1
DAC16 2.2n/4/X7R/50V/K — DAR42 1K/4/1 — DAC43 0.22u/4/X7R/16V/K
VSUMA- R — DAR44 604/4/1
NTC_A — DAR47 12K/4/1 — DAC19 0.1u/4/X7R/16V/K
IMON_A — DAR49 — MASK/0/4/SHT/M/10/X — DAC21 330p/4/NPO/50V/J — DAR52 80.6K/4/1 — DAR53 18K/4/1 — DANTC2 470K/1/4/S/[10RH3-004703-21R]
CLOSE ?

BOOT1_B — DAR58 2.2/6 — DAC25 0.22u/6/X7R/16V/K — UGATE1_B — PHASE1_B — LGATE1_B — PHASE1_B 23
PWM2_B — PWM3_B — NC/PWM3_B
ISEN1_B — ISEN2_B — NC/ISEN3_B
ISUMP_B — ISUMN_B — NTC_B — IMON_B

DAR71-->442 ohm
OCP-->90A
VSUMB+ — DAR68 2.61K/4/1 — DANTC4 10K/1/4/S — VSUMB-
VSUMB- R — DAR67 12K/4/1
DAC31 2.2n/4/X7R/50V/K — DAC32 0.33u/4/X5R/6.3V/K — DAC34 0.33u/4/X5R/6.3V/K — DAR74 11K/4/1
DAR75 1K/4/1 — DAC44 0.01u/4/X7R/25V/K
DAR71 442/4/1 — DANTC3 470K/1/4/S/[10RH3-004703-21R]
DAR72 60.4K/4/1 — DAR73 18K/4/1 — DAC33 330p/4/NPO/50V/J — MASK/0/4/SHT/M/10/X
DAC35 0.1u/4/X7R/16V/K
CLOSE ?

CLOSE DA_ DL1 DC SIDE
CLOSE DE_ DL1 DC SIDE

VSUMA+ — DAR1 3.65K/4/1 — CSP1_A 22 — ISEN1_A — DAR2 100K/4/1 — DAR3 100K/4/1 V2N_A — DAR4 100K/4/1 V3N_A — DAR81 100K/4/1 V4N_A — DAR6 10/4 V1N_A — DAC1 0.022u/4/X7R/25V/K — DAR5 200K/4/1/X — VSUMA-
VSUMA+ — DAR10 3.65K/4/1 — CSP2_A 22 — ISEN2_A — DAR11 100K/4/1 — DAR20 100K/4/1 V1N_A — DAR22 — DAR21 100K/4/1 V3N_A — DAR82 100K/4/1 V4N_A — DAR24 10/4 V2N_A — DAC4 0.022u/4/X7R/25V/K — 200K/4/1/X — VSUMA-
VSUMA+ — DAR25 3.65K/4/1 — CSP3_A 22 — ISEN3_A — DAR27 100K/4/1 — DAR28 100K/4/1 V1N_A — DAR30 — DAR29 100K/4/1 V2N_A — DAR83 100K/4/1 V4N_A — DAR32 10/4 V3N_A — DAC6 0.022u/4/X7R/25V/K — 200K/4/1/X — VSUMA-
VSUMA+ — DAR84 3.65K/4/1 — CSP4_A 22 — ISEN4_A — DAR85 100K/4/1 — DAR86 100K/4/1 V1N_A — DAR89 — DAR87 100K/4/1 V2N_A — DAR90 100K/4/1 V3N_A — DAR91 10/4 V4N_A — DAC42 0.022u/4/X7R/25V/K — 200K/4/1/X — VSUMA-
V1N_A — CSN1_A 22
V2N_A — CSN2_A 22
V3N_A — CSN3_A 22
V4N_A — CSN4_A 22
CLOSE PWM

VSUMB+ — DAR43 3.65K/4/1 — CSP1_B 23 — ISEN1_B — DAR45 100K/4/1 — DAR48 100K/4/1 V2N_B — DAR50 — DAR92 100K/4/1 V3N_B — DAC20 0.022u/4/X7R/25V/K — 200K/4/1/X — VSUMB-
VSUMB+ — DAR56 3.65K/4/1 — CSP2_B 23 — ISEN2_B — DAR59 100K/4/1 — DAR62 100K/4/1 V1N_B — DAR64 — DAR93 100K/4/1 V3N_B — DAC28 0.022u/4/X7R/25V/K — 200K/4/1/X — VSUMB-
VSUMB+ — DAR94 3.65K/4/1 — CSP3_B 23 — ISEN3_B — DAR95 100K/4/1 — DAR96 100K/4/1 V1N_B — DAR98 — DAR97 100K/4/1 V2N_B — DAC37 0.022u/4/X7R/25V/K — 200K/4/1/X — VSUMB-
V1N_B — CSN1_B 23
V2N_B — CSN2_B 23
V3N_B — CSN3_B 23
CLOSE PWM

VCORE	ISL95856	ISL95866
DAR137	X	V
DAR138	V	X
DAR139	X	V
DAC15	V	X
DAR79	V	X
DAR33	V	X

VCCGT	ISL95856	ISL95866
DAR140	X	V
DAR141	V	X
DAR142	X	V
DAC27	V	X
DAR80	V	X
DAR51	V	X

+12V — DAR125 8.2K/4/1 — DAQ4 2N7002/SOT23/25pF/5 — DAR127 2K/4/1 — FB_GT — SOT23 — VCCGT_SENSE
VCC3 — 不上件 — DAR123 1K/4/1/X — DAR124 — DAQ3 MMBT2222A/SOT23/600mA/40 — SOT23
10 N_GT_S — 8.2K/4
連接至PCH GPP_GP14

+12V — DAR122 8.2K/4/1 — DAQ2 2N7002/SOT23/25pF/5 — DAR126 3.48K/4/1 — FB_CPU — SOT23 — VCORE_VCC_SEN
VCC3 — 不上件 — DAR120 1K/4/1/X — DAR121 — DAQ1 MMBT2222A/SOT23/600mA/40 — SOT23
10 N_CPU_S — 8.2K/4
連接至PCH GPP_GP15

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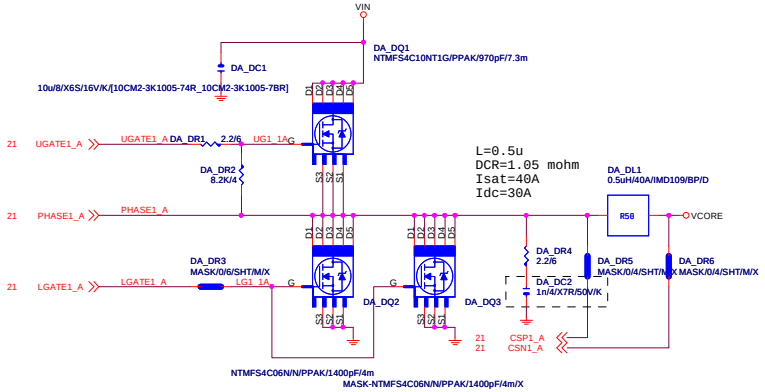
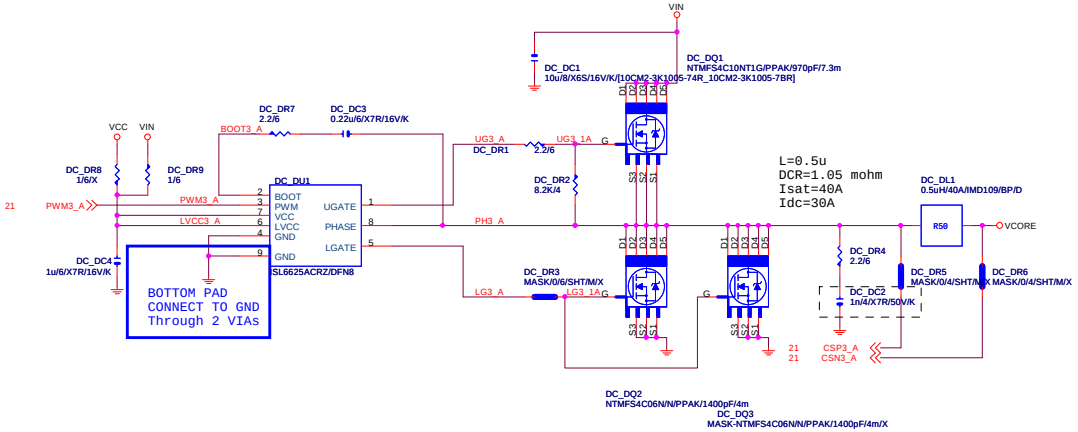
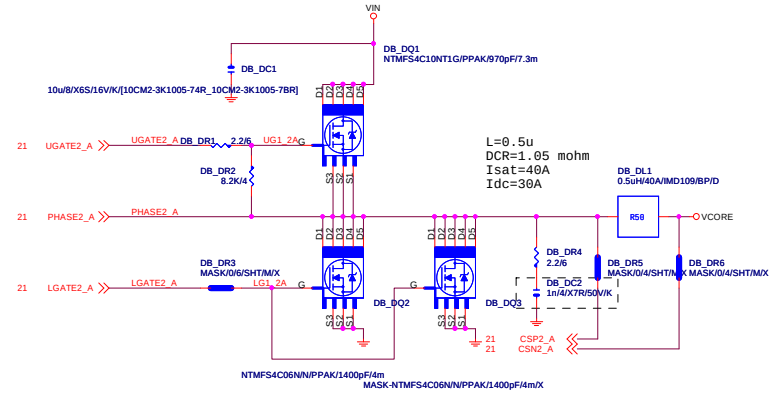
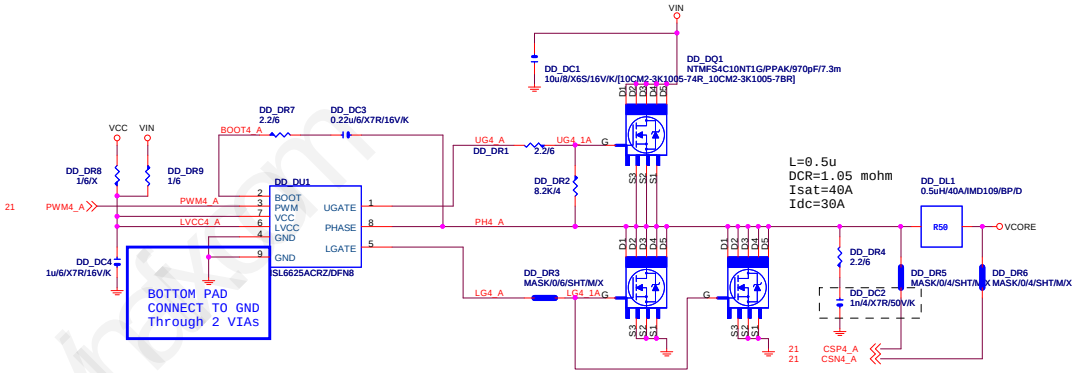
VCORE



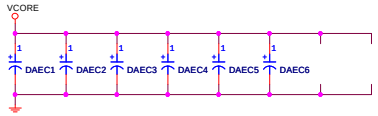


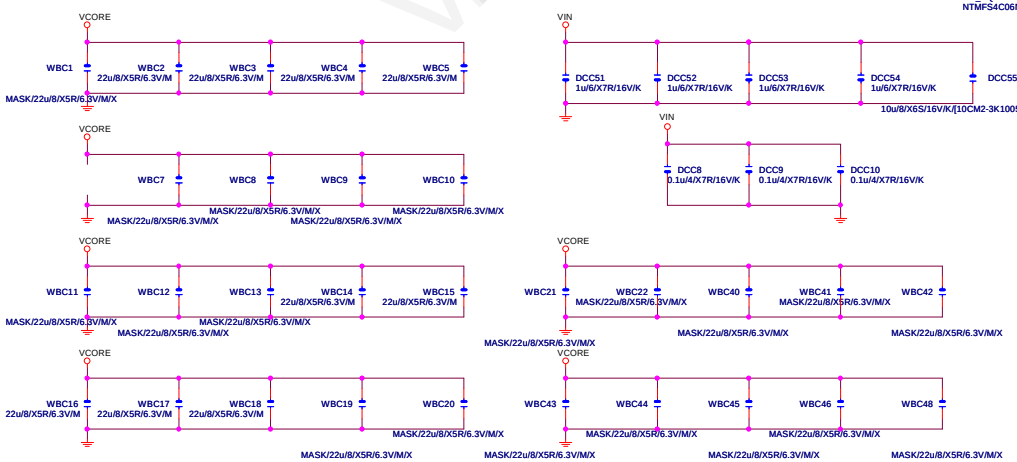




VCORE CAP

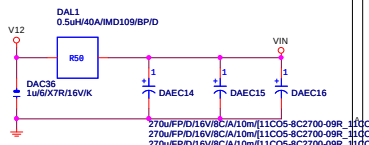
560u*8PCS
22u*29PCS





VIN CAP

270u*3PCS



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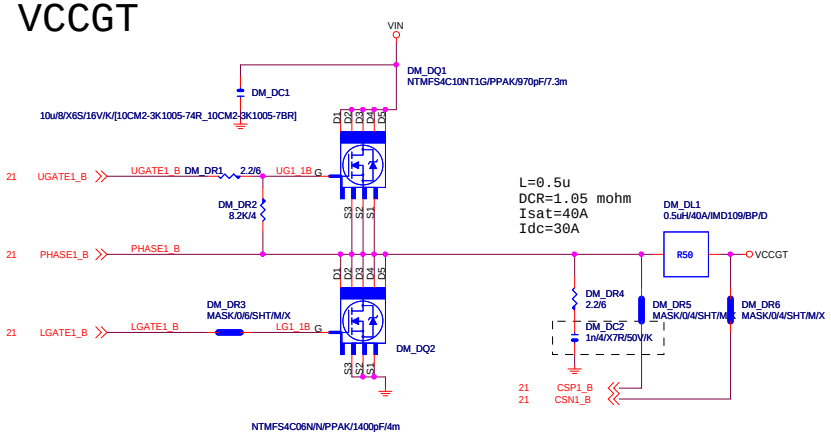
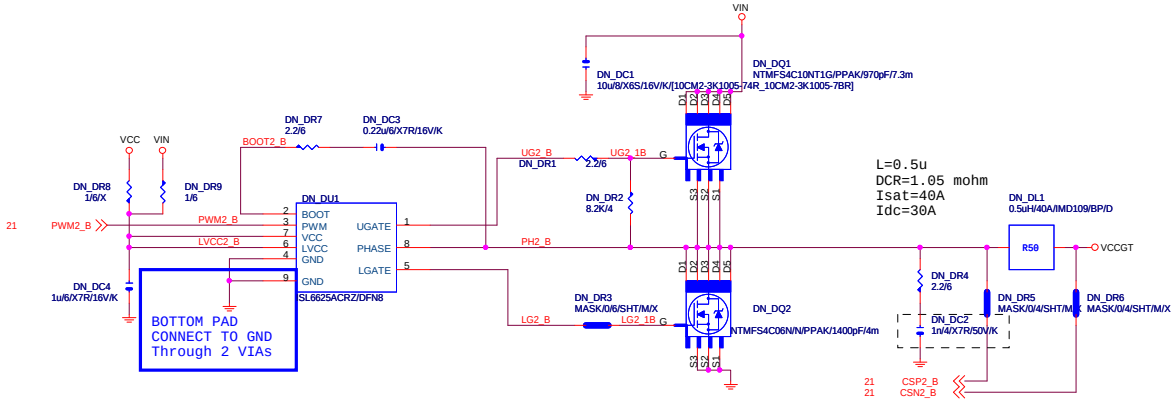
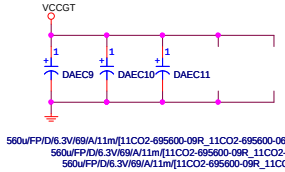
VCCGT

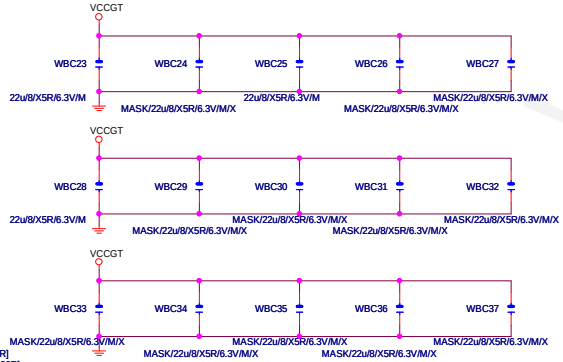


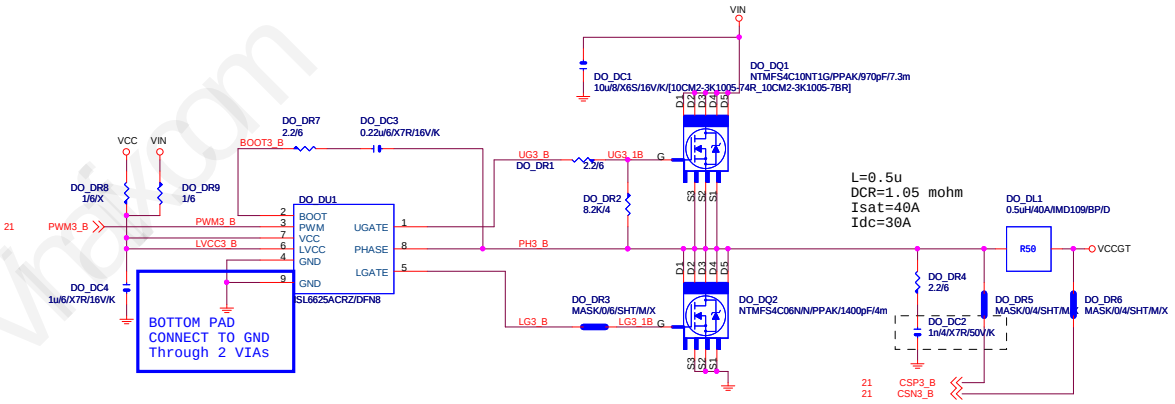


VCCGT CAP

560u*5PCS
22u*15PCS







GIGABYTE™

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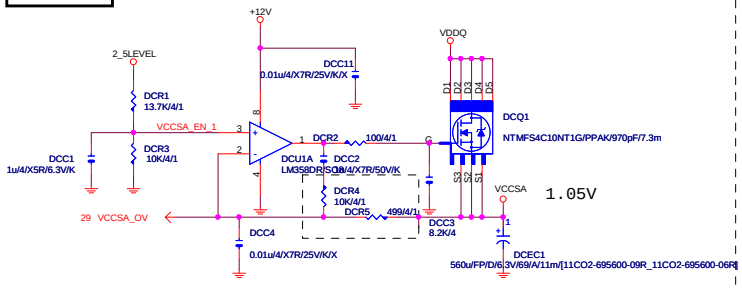
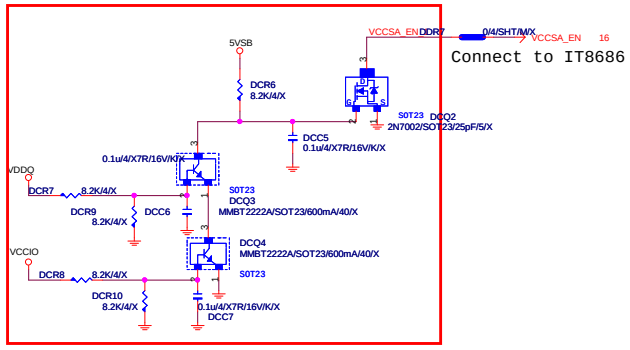
Vinafix.com

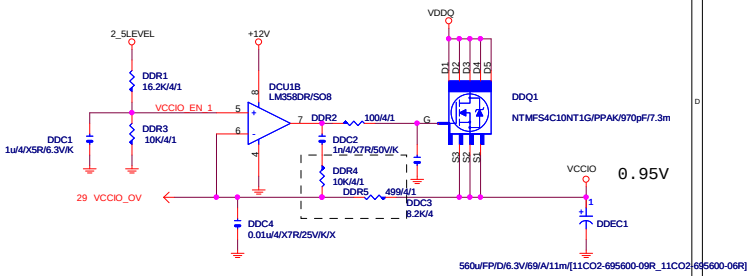
VCCSA

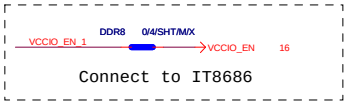


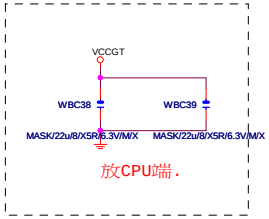
Connect to IT8793



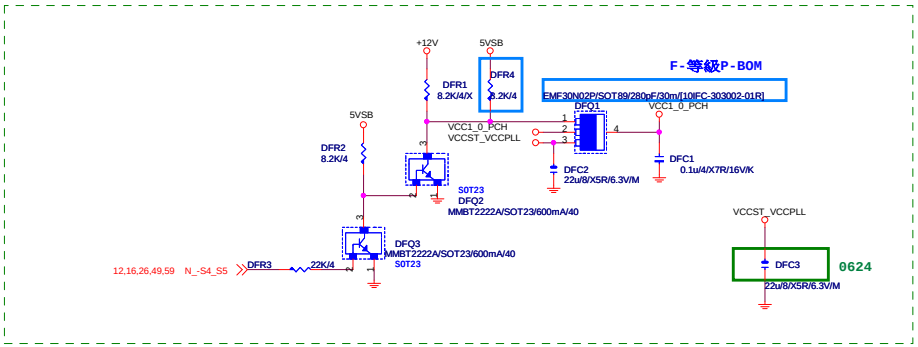
VCCIO







VCCST_VCCPLL



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Vinafix.com

DDR4

L=0.5u
DCR=2.1 mohm
Isat=20A
Idc=15A

DDR VIN CAP
560u*2PCS

CHOKE與CAP料號可變

5VDUAL
+12V
MA_DR10 0/6/X
MA_D1
MA_DR8 2.2/6
DRV_DDR
SDM20E40C/0.4A/SOT23
MA_DC10 1u/6/X7R/16V/K
MA_DC9 0.1u/6/X7R/25V/K

RT8120DGS/SOP8
MAU2
COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC
DDR_EN
MA_DR15 27K/4/1
MA_DC15 22p/4/NPO/50V/J
MA_DC16 3.3n/4/X7R/50V/K
MA_DR19
MASK/0/4/SHT/X
MA_UGATE
MA_PHASE
MA_LGATE
MA_DR18 11.8K/4/1
OCP=40A
放靠近IC pin4

VDDQ_SIO VDDQ
DDR_VS
MASK/0/4/SHT/M/X

CLOSE TO DDR POWER PLANE

5VDUAL
MA_L2 0.5uH/20A/IMD0809/BP/D
8*8
MA_DC6 0.1u/4/X7R/16V/K
Close Choke
MA_DC7 1u/6/X7R/16V/K
Close MOS
MA_VIN
MAEC1 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-695600-06R]
MAEC2 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-695600-06R]
MA_DQ1 NTMFS4C06N/N/PPAK/1400pF/4m
MA_DR1 2.2/6
MA_DR2 8.2K/4
MA_DQ2
MA_DQ3
MA_DR5 2.2/6
MA_DC5 1n/4/X7R/50V/K
NTMFS4C06N/N/PPAK/1400pF/4m
NTMFS4C06N/N/PPAK/1400pF/4m
MA_L1 1uH/35A/IMD109/BP/D
R50
10*10
VDDQ
MA_DR14 487/4/1
MA_DR13 1K/4/1
MA_DQ14 3.3n/4/X7R/50V/K
RS
RO
MA_DR12 2K/4/1
DDR_ADJ
29 DDR_ADJ

SUPPORT DDR4 1.2V
25A MAX
L=1u
DCR=2.5 mohm
Isat=35A
Idc=28A
MAC60 22u/8/X5R/6.3V/M/X

請放置CHOKE一出來位置,先預留,
請自行確認ripple後再決定是否上件

Remote sense請從最重的負載端點拉回

MOSFET請依MOSFET使用規則,自行選擇
ON-->10IF9-040406-10R[NTMFS4C06N/N/PPAK/1400pF/4m]
VISHAY-->10IF9-040012-10R[SIRA12DP/PPAKSO8/2070pF/4.3m]

PWR SEQ

DDR_EN
5VDUAL
VPP_25V
MAR108 22K/4
MAQ6 2N7002/SOT23/25pF/5
SOT23
MAR9 10K/4/1
MAQ5
SOT23
MMBT2222A/SOT23/600mA/40
MAR107 5.11K/4/1/X
MAC3 0.1u/4/X7R/16V/K

For power sequence require

Connect to IT8793
16,26 MA_EN
MAR113 0/4/SHT/M/X
Connect to IT8686

5VDUAL
DDR_EN
MAR2 8.2K/4
MAQ11 2N7002/SOT23/25pF/5
SOT23
MAR105 100K/4/1
MAR1 8.2K/4
MAQ10 2N7002/SOT23/25pF/5
SOT23
MAC9 1u/6/X7R/16V/K

DDRVTT

VDDQ
NCT3103S/SOP8/2A
MAC2 1u/4/X5R/6.3V/K
MAR5 1K/4/1
29 MA_VTT_REF
MA_VTT_REF
MAC1 0.01u/4/X7R/25V/K
MAR4 1K/4/1
MAU1
VIN VREF2 GND ENABLE VREF1 VCNTL VOUT GND BOOT_SEL
DDRVTT_EN
DDRVTT_BOOT
5VDUAL
MAC7 10u/6/X5R/6.3V/M
1.1A MAX
DDRVTT

4 DDR_VTT_CTL
12,16,47,49,59 N_-SLP_S3
DDR_VTT_CTL MAR110 DDRVTT_EN
N_-SLP_S3 MAR111 DDRVTT_BOOT
0/4/SHT/M/X
0/4/SHT/M/X
MAU1上NCT3103S時上件

DDR CAP

560u*4PCS 22u*2PCS

VDDQ
MAEC3 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-695600-06R]
MAEC4 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-695600-06R]
MAEC6 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-695600-06R]
MAEC7 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-695600-06R]
* 大電容 x4
WBC49 22u/8/X5R/6.3V/M
WBC6 MASK/22u/8/X5R/6.3V/M/X

DDRVTT CAP

* 大電容 x0
DDRVTT
MAC4 22u/8/X5R/6.3V/M
MAC5 22u/8/X5R/6.3V/M

GIGABYTE

Title	RT8120_DDR4 POWER	
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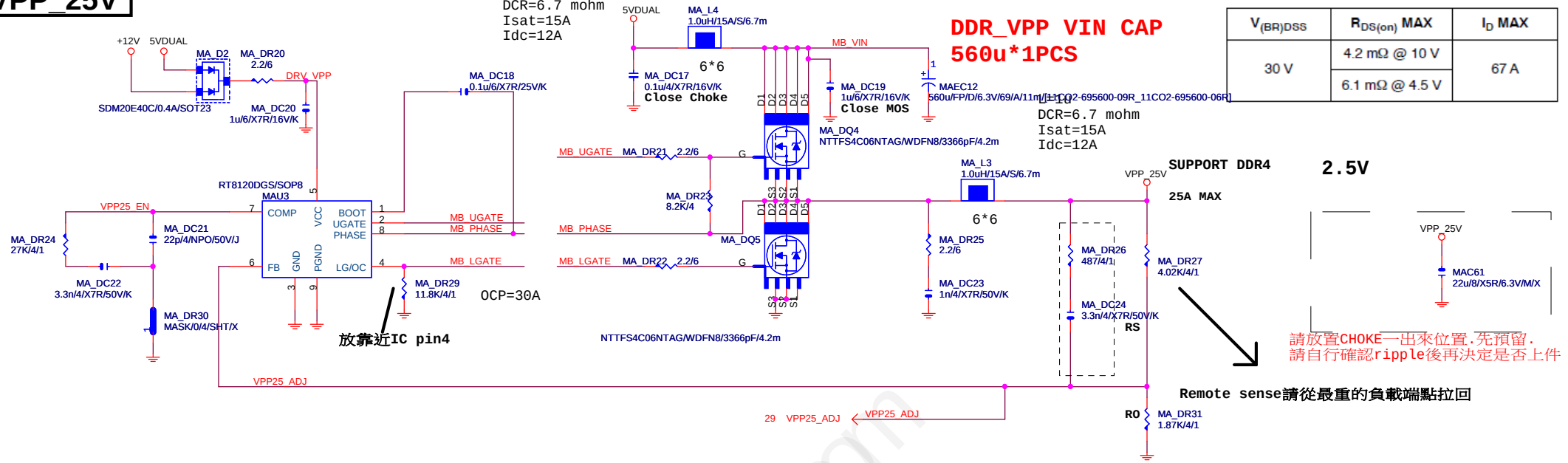
VPP_25V

CHOKE與CAP料號可變

L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A

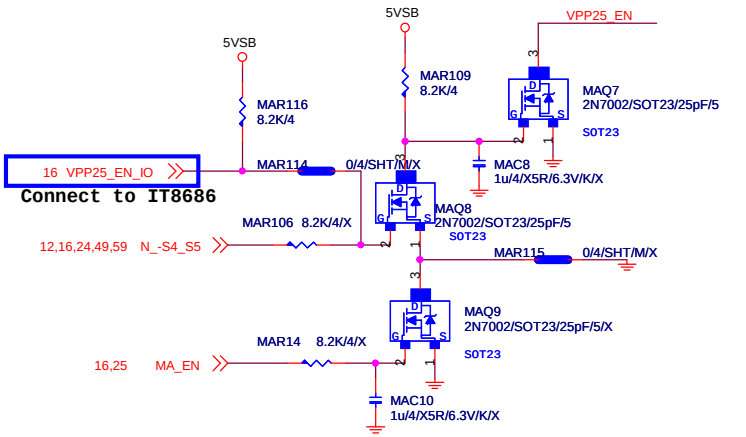
$V_{(BR)DSS}$	$R_{DS(on)}$ MAX	I_D MAX
30 V	4.2 mΩ @ 10 V	67 A
	6.1 mΩ @ 4.5 V	

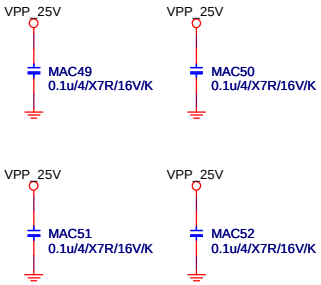
DDR_VPP VIN CAP
560u*1PCS



PWR SEQ

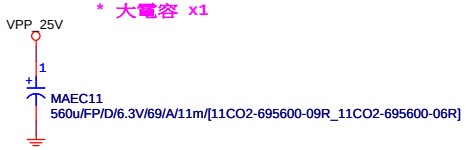
* 刪 MA_DR32





VPP CAP 560u*1PCS

* 大電容 x1



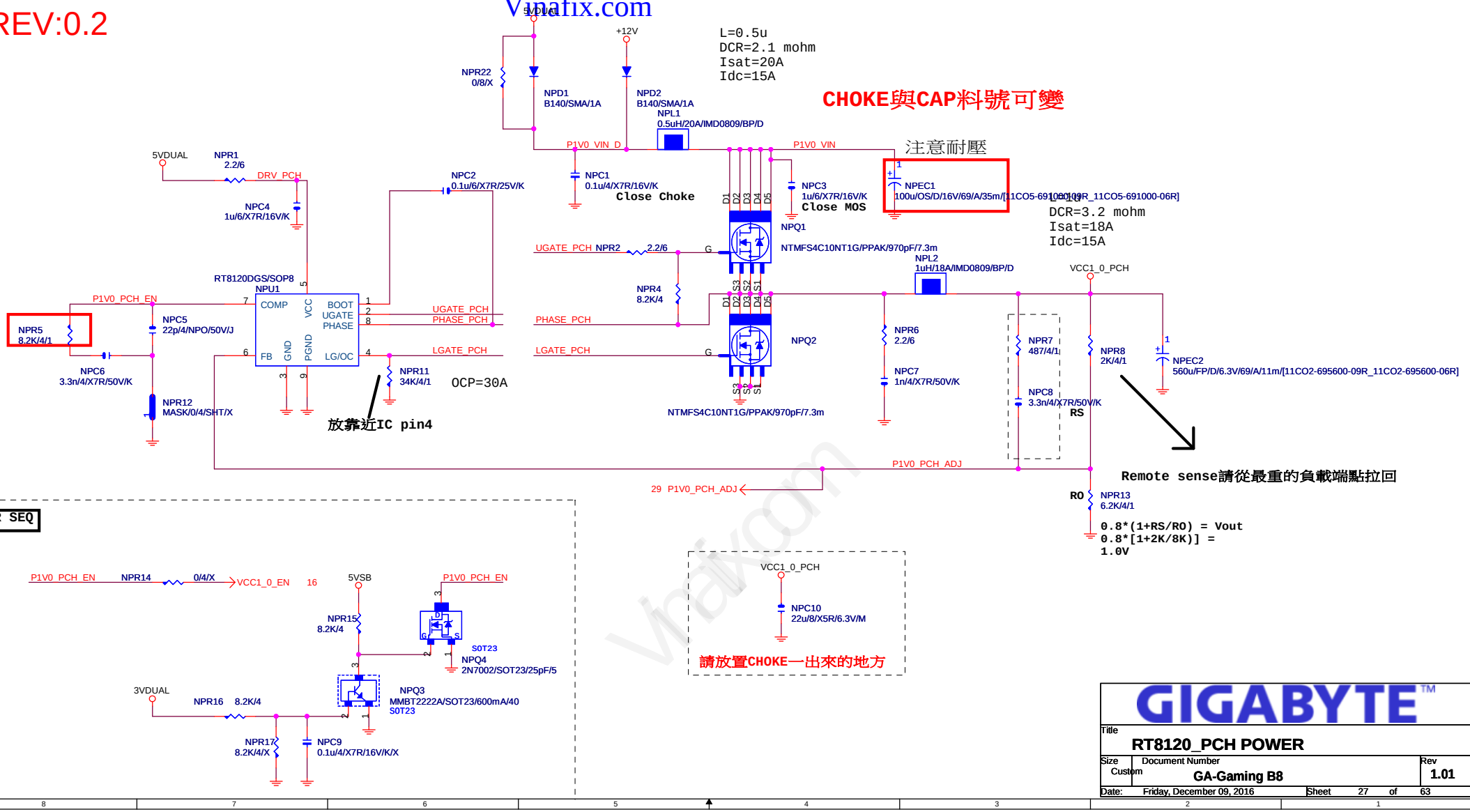
GIGABYTE™

Title: RT8120_VPP25 POWER

Size	Document Number	Rev
Custom	GA-Gaming B8	1.01

Date: Friday, December 09, 2016 Sheet 26 of 63

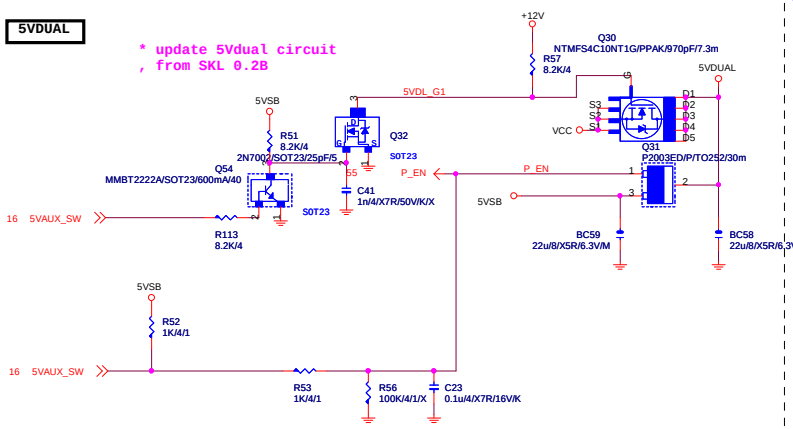
REV:0.2



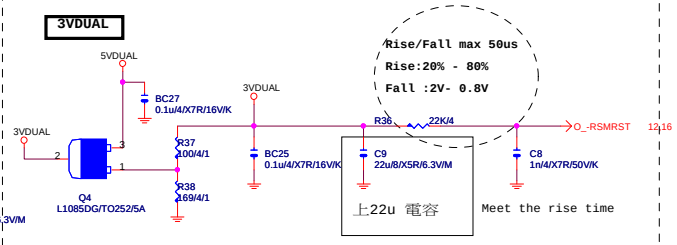
GIGABYTE™

Title	RT8120_PCH POWER	
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 27 of 63	

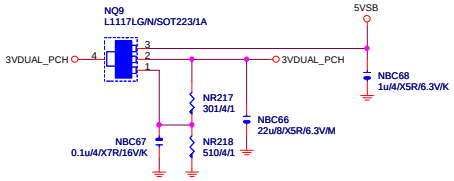
5VDUAL

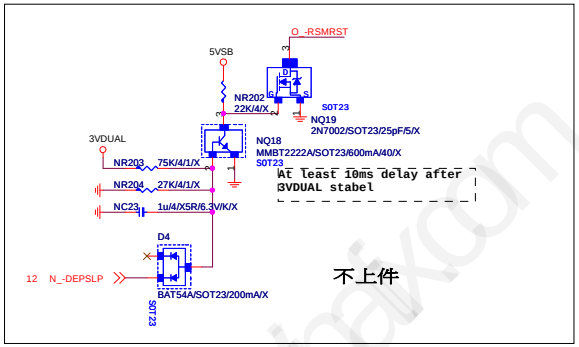


3VDUAL



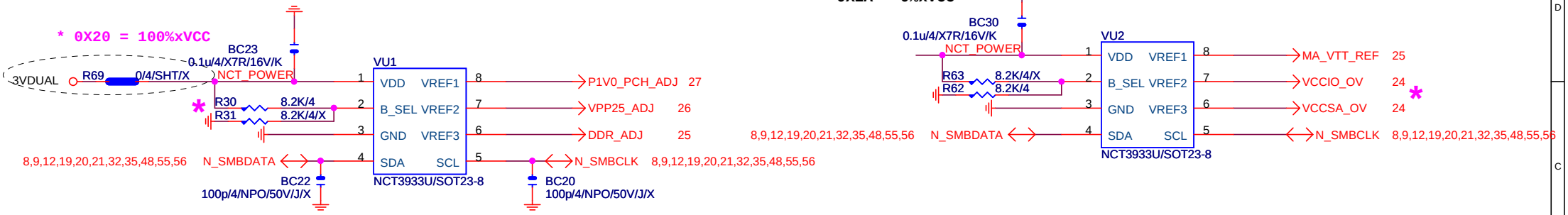
3VDUAL_PCH





Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 28 of 63	

OVER VOLTAGE



* 删除 0VU3

NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology

Title: CPU CORE VR-2

Size: Custom | Document Number: GA-Gaming B8 | Rev: 1.01

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Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

ATXX4 POWER CONNECTOR

* 刪除 -5V

APW/2*12/BK/VA/SN/2SHK/PA66/[11NH4-020024-11R_11NH4-020024-11R]::Location ATX

APW/2*4/BK/OC/P/4.2/VA/SN/OH/[11NH4-020008-B1R_11NH4-020008-B4R]::Location ATX_12V_2X4

黑色

To prevent the 5VSB loading when boot

FOR AUDIO 切割

HOLE_4-RH-1 HOLE_4-RH-5MM-1 HOLE_4-RH-1

HOLE_4-RH-1 HOLE_4-RH-1 HOLE_4-RH-5MM-1

K1-ICT

4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

MMBT2222A/SOT23/600mA/40

-PROHOT * 保留 ?

-PROHOT OTP:130度 / PCB THERMAL TRIP:128 度

125 ~130degree assert

CLOSE VCORE PWM UPPER MOSFET

-PROHOT OTP:130度 / PCB THERMAL TRIP:129 度

125 ~130degree assert

CLOSE VCCGT PWM UPPER MOSFET

Gigabyte Technology			
Title: ATX POWER CONNECTOR			
Size: Custom	Document Number: GA-Gaming B8		Rev: 1.01
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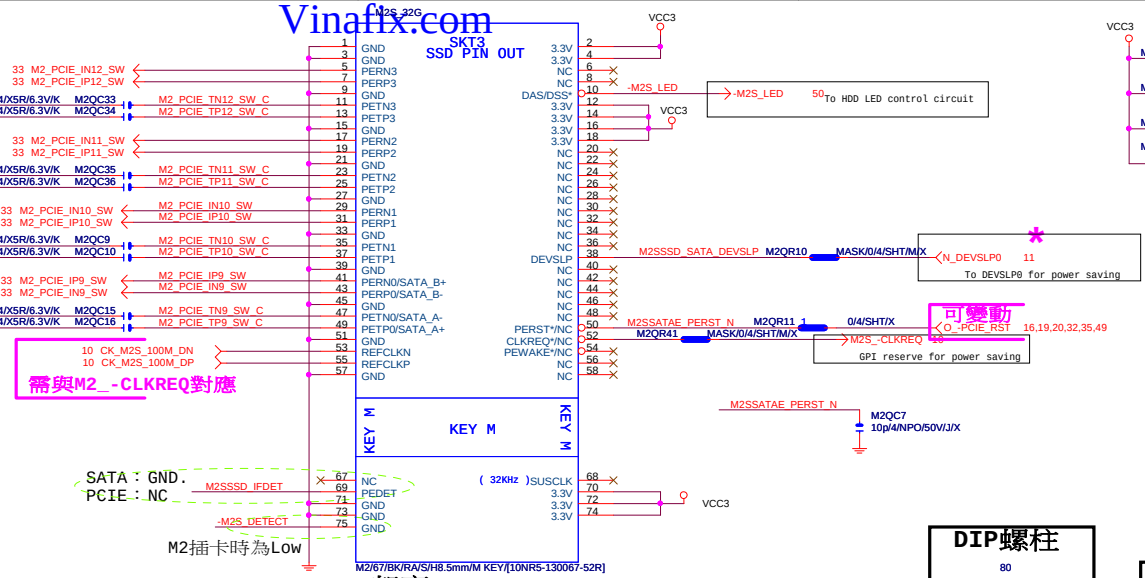
Rev 0.1

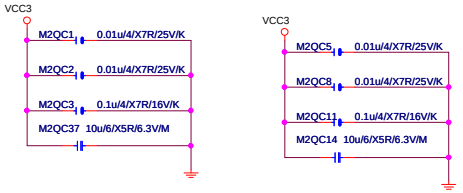
M.2 Lane4 from PCH port12

M.2 Lane3 from PCH port11

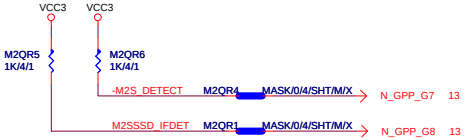
M.2 Lane2 from PCH port10

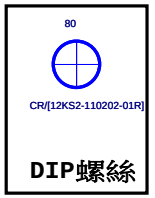
M.2 Lane1 from PCH port9

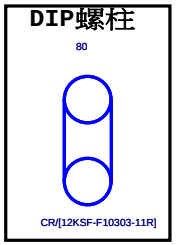


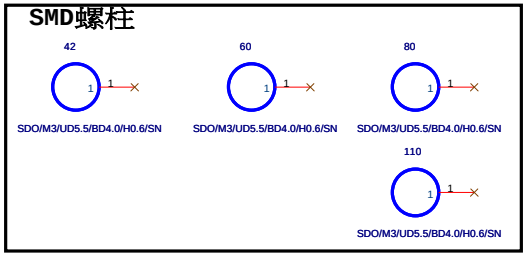


支援SATA and M.2 function









PCH IOx Port Define

Flex IO priority	N_GPP_G7 (PCH GPP_G0)	N_GPP_D13 (PCH GPP_D16)	N_GPP_G8 (PCH GPP_G8)	IO9	IO10	IO11	IO12
M2P_32G Only (SATA Mode)	L	H	L	SATA	PCIEx1	PCIEx1	PCIEx1
M2P_32G Only (PCIE Mode)	L	H	H	PCIEx4			
PCIEX4 Only (PCIE Reverse)	H	L	NA	PCIEx4			
M2S_32G First (PCIE Mode)	L	L	H	PCIEx4			
M2S_32G First (SATA Mode)	L	L	L	SATA	PCIEx1	PCIEx1	PCIEx1

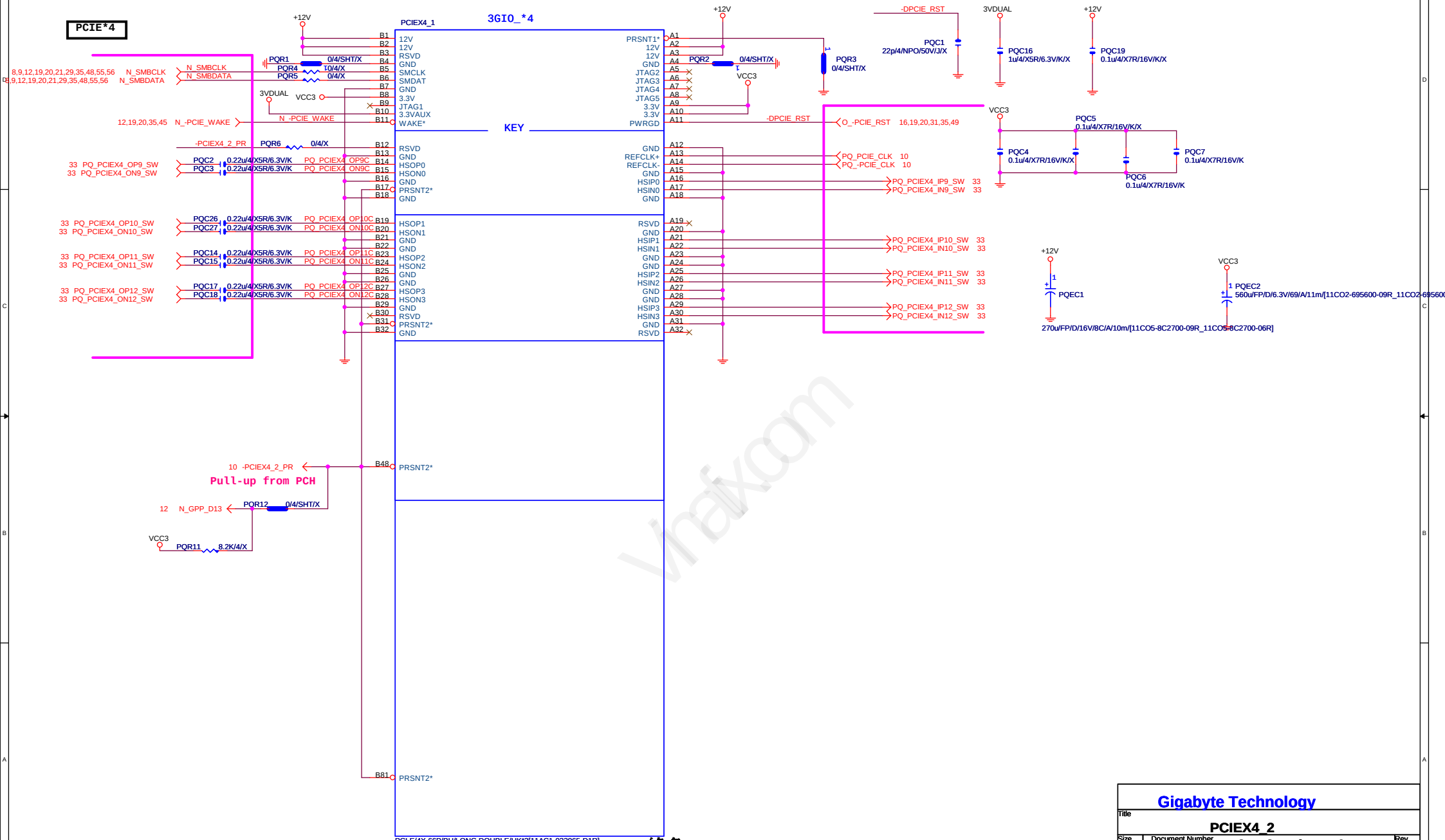
Gigabyte Technology

Title: M.2 X4

Size: Custom | Document Number: GA-Gaming B8 | Rev: 1.01

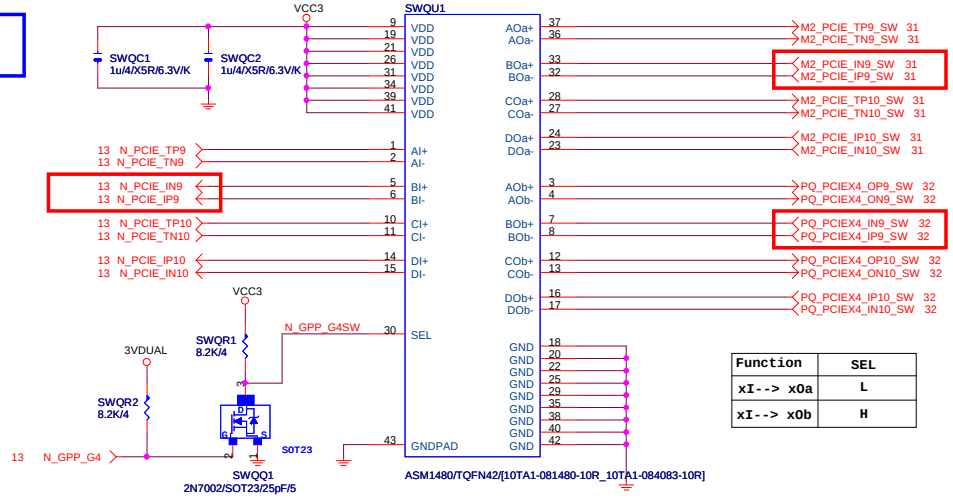
Date: Friday, December 09, 2016 | Sheet 31 of 63

Footprint "PCIESLOT-64STH-1"

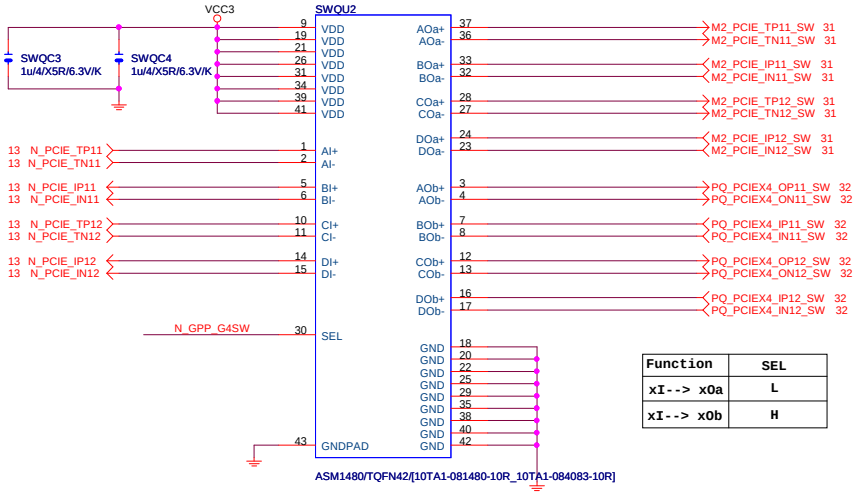


Gigabyte Technology	
Title	PCIEX4_2
Size: Custom	Document Number: GA-Gaming B8
Rev	1.01
Date: Friday, December 09, 2016	Sheet 32 of 63

Rev 0.1



Function	SEL
xI--> xOa	L
xI--> xOb	H



Function	SEL
xI--> xOa	L
xI--> xOb	H

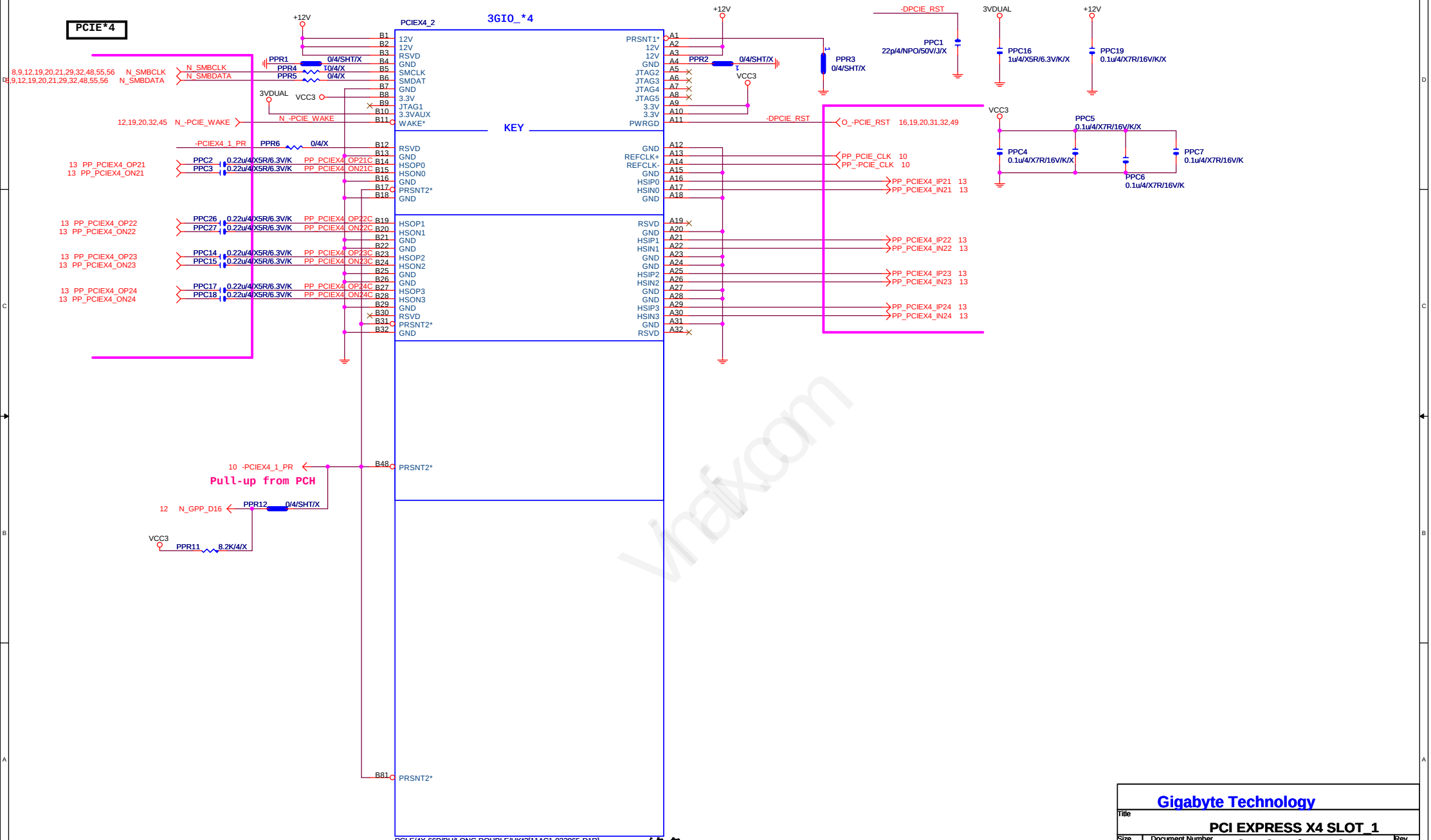
Switch

Flex IO priority	N_GPP_G7 (PCH GPP_G7)	N_GPP_D13 (PCH GPP_D13)		N_GPP_G4 (PCH GPP_G4)
M2S_32G Only	L	H	→	H
PCIEX4 Only	H	L	→	L
M2S_32G First	L	L	→	H

Title	Gigabyte Technology SWITCH		
Size: Custom	Document Number: GA-Gaming B8		Rev: 1.01
Date: Friday, December 09, 2016	Sheet 33 of 63		

Gigabyte Technology		
Title: M.2R X2		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 34 of 63	

Footprint "PCIESLOT-64STH-1"

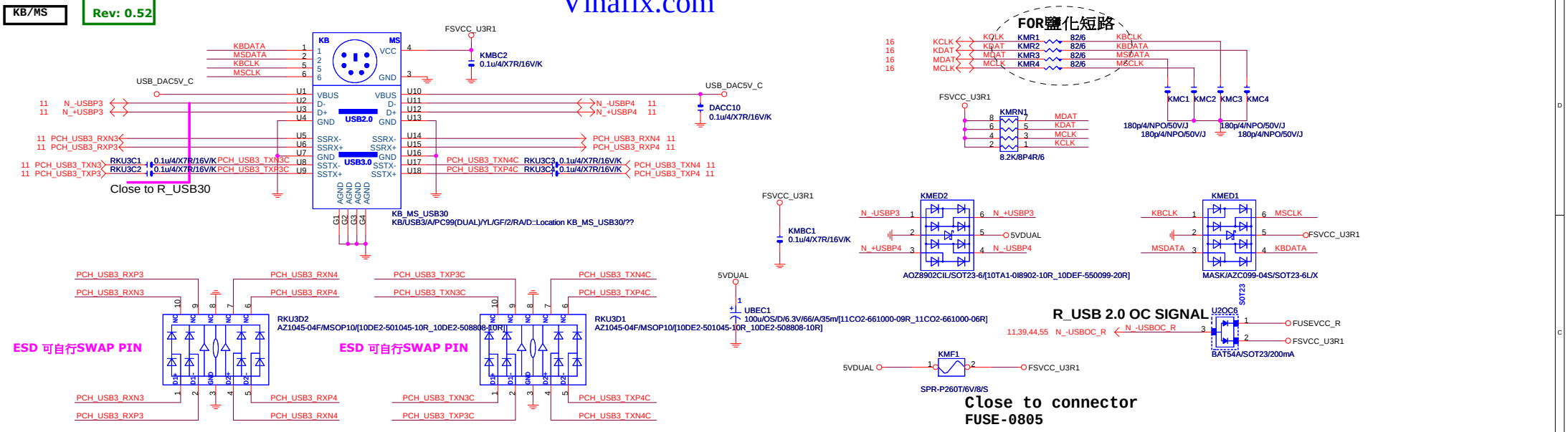


Gigabyte Technology	
Title	PCI EXPRESS X4 SLOT_1
Size: Custom	Document Number: GA-Gaming B8
Rev	1.01
Date: Friday, December 09, 2016	Sheet 35 of 63

Gigabyte Technology				
Title: SWITCH				
Size: Custom	Document Number: GA-Gaming B8			Rev: 1.01
Date: Friday, December 09, 2016		Sheet 36 of 63		

KB/MS

Rev: 0.52



Close to connector
FUSE-0805

Gigabyte Technology			
Title: AUDIO JACK			
Size: Custom	Document Number: GA-Gaming B8		Rev: 1.01
Date: Friday, December 09, 2016	Sheet 37 of 63		

Rev: 0.8

Front USB3.0

NET 自行調整

F_USB30
REV=1

FSVCC_U3F1 — 1 VBUS
10 ID
2 SSRX1-
3 SSRX1+
5 SSTX1-
6 SSTX1+
8 D1-
9 D1+
7 GND
4 GND

19 VBUS
15 SSTX2-
14 SSTX2+
18 SSRX2-
17 SSRX2+
12 D2-
11 D2+
16 GND
13 GND

11 PCH_USB3_RXN1
11 PCH_USB3_RXP1
11 PCH_USB3_TXN1
11 PCH_USB3_TXP1
11 N_-USBP1
11 N_+USBP1

FAU3C1 0.1u/4/X7R/16V/K FU30_TXN1
FAU3C2 0.1u/4/X7R/16V/K FU30_TXP1

FU30_TXN2
FU30_TXP2
FAU3C3 0.1u/4/X7R/16V/K
FAU3C4 0.1u/4/X7R/16V/K

FSVCC_U3F1
NET 可自行調整
PCH_USB3_TXN2 11
PCH_USB3_TXP2 11
PCH_USB3_RXN2 11
PCH_USB3_RXP2 11
N_-USBP2 11
N_+USBP2 11

BH/2*10K20/BK/ON/2.0/VA/USB3.0/PRT/[11NH3-021210-52R_11NH3-021210-51R]

Check F_USB30 location.
★Update 2015.10.01

NET 可自行調整

PCH_USB3_RXP1
PCH_USB3_RXN1
PCH_USB3_RXN2
PCH_USB3_RXP2

FAU3D1
AZ1045-04F/MSOP10/[10DE2-501045-10R_10DE2-508808-10R]

FAU3D3
N_-USBP1
N_+USBP2
N_+USBP1
3VDUAL
N_-USBP2
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R_10DEF-550099-20R]

CLOSE F_USB30

FU30_TXP1
FU30_TXN1
FU30_TXN2
FU30_TXP2

FAU3D2
AZ1045-04F/MSOP10/[10DE2-501045-10R_10DE2-508808-10R]

CLOSE F_USB30

Front USB30 P/N:11NH3-021210-B1R/B2R

Rear window
★Update 2015.10.01

Front USB30 P/N:11NH3-021210-51R/52R

5VDUAL
FAU3F1 SPR-P260T/6V/8/S FSVCC_U3F1
FAU3EC1 100u/OS/D/6.3V/66/A/35m/[11CO2-661000-09R_11CO2-661000-06R]
FAU3C5 0.1u/4/X7R/16V/K

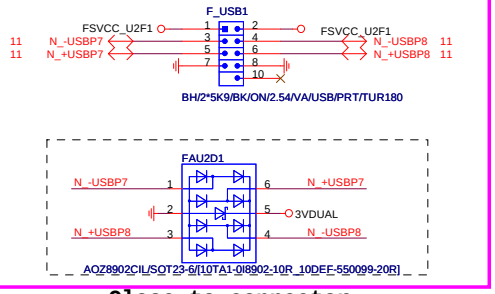
11,39 N_-USBOC_F
N_-USBOC_F
U3OC1 SOT23
FSVCC_U3F1
BAT54A/SOT23/200mA

Gigabyte Technology		
Title	R_USB30,F_USB30, USB_OC	
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 38 of 63	

Rev: 0.52

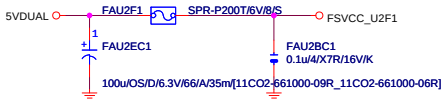
FRONT USB1

NET 可變



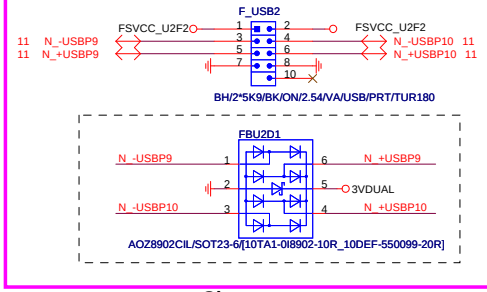
Close to connector

FUSE 2 Port 1 Fuse 2A



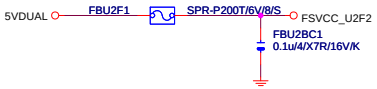
FRONT USB2

NET 可變

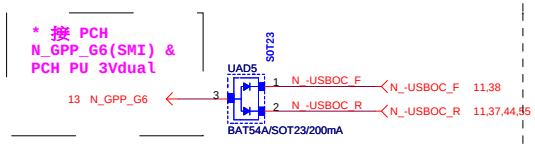


Close to connector

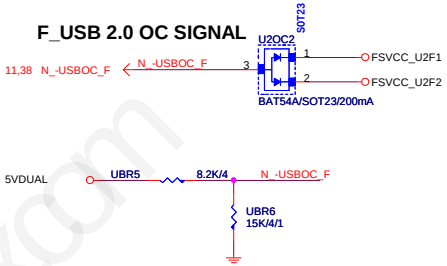
FUSE 2 Port 1 Fuse 2A



* 接 PCH N_GPP_G6(SMI) & PCH PU 3Vdual

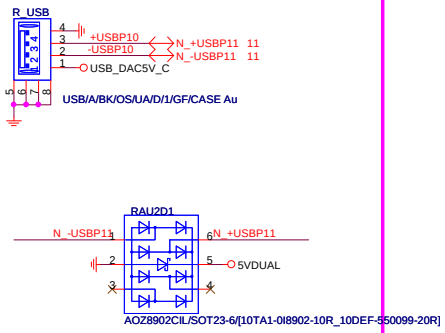


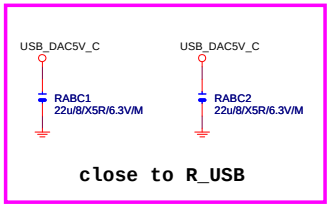
F_USB 2.0 OC SIGNAL



Gigabyte Technology		
Title: USB2.0		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 39 of 63	

NET 可變





Gigabyte Technology		
Title: KB_MS_USB3, R_USB30		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
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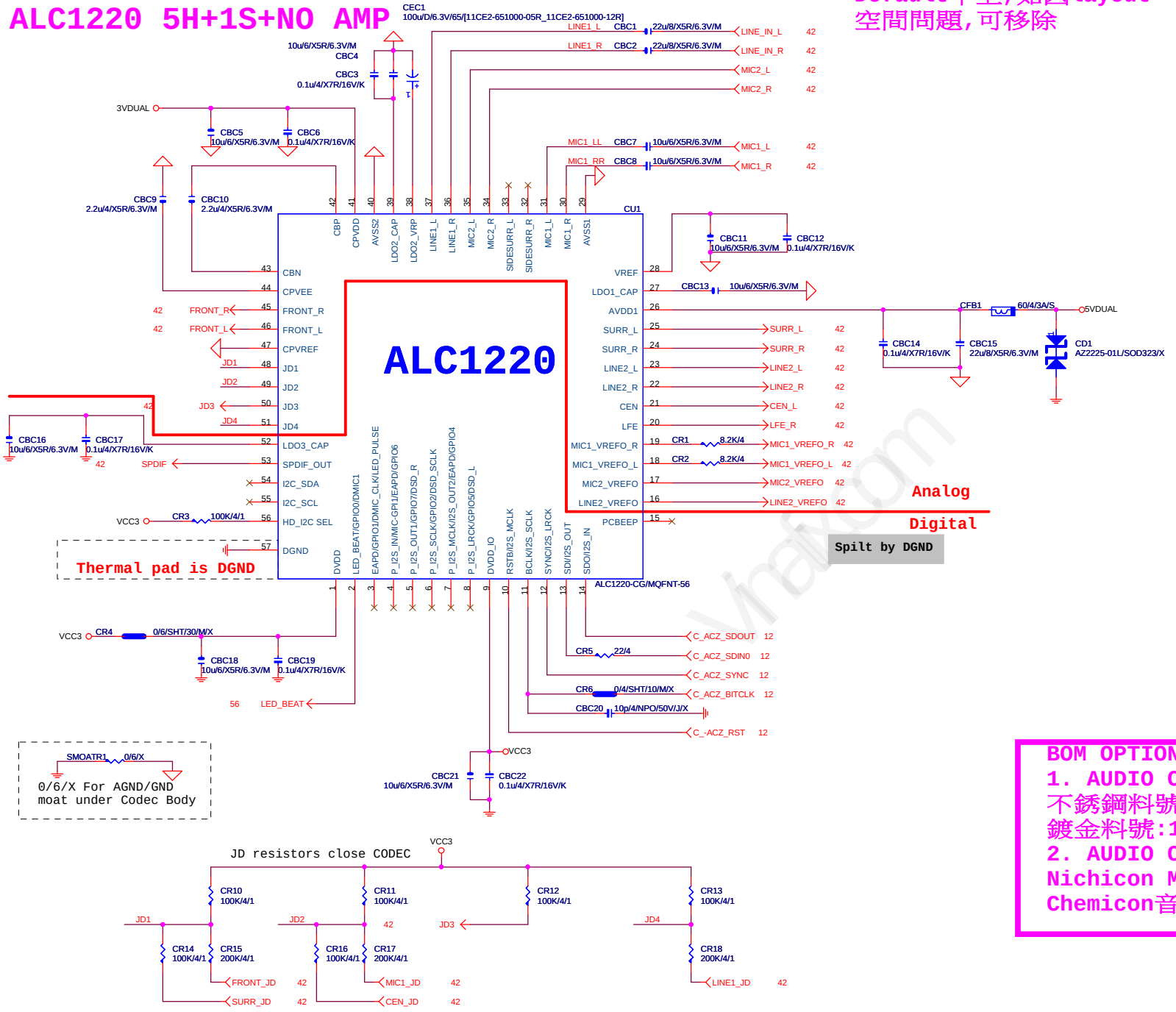
Rev 0.52

ALC1220 5H+1S+NO AMP

Default不上,如因layout空間問題,可移除

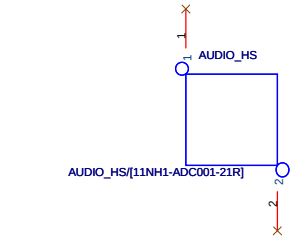
LAYOUT注意:螺絲孔下GND方式
1. MH1下DGND
2. MH2一律改為Isolate

MH1	MH2
DGND	Isolate



LAYOUT注意:是否要加?
AGND切割線

音效區域印刷

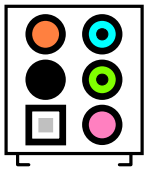


BOM OPTION :
1. AUDIO CONNECT
不銹鋼料號:11NR6-403025-A2R
鍍金料號:11NR6-403025-92R
2. AUDIO CAP
Nichicon MW音效電容 : 11CE1-651000-12R
Chemicon音效電容 : 11CE2-651000-05R

Gigabyte Technology		
Title: ALC1220		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 41 of 63	

Rev 0.52

AZALIA JACK



CR19 2.2/6/X → Audio jack -> USB(各打2 VIA hole)

CR22 0/6 → Under Audio jack(各打2 VIA hole)

MOATR1 0/4/X, MOATC1 0.1u/4/X7R/16V/K → Near F_AUDIO(各打2 VIA hole)

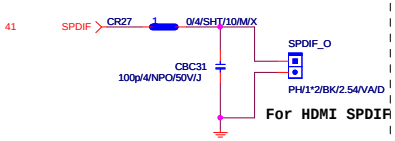
MOATR2 0/4/X, MOATC2 0.1u/4/X7R/16V/K → Near Codec (各打2 VIA hole)

MOATR3 0/4, MOATC3 0.1u/4/X7R/16V/K → Near R_AUDIO(各打2 VIA hole)

MOATR4 0/4/X, MOATC4 0.1u/4/X7R/16V/K → Near AMP (各打2 VIA hole)

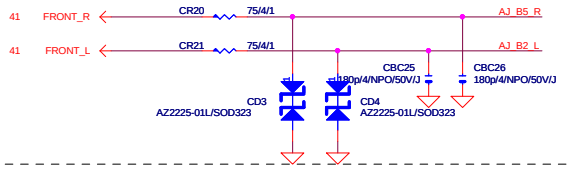
*量產前,0ohm改short pad

SPDIF_OUT

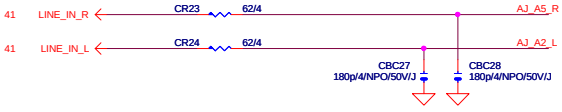


For HDMI SPDIF

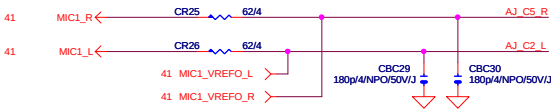
LINE-OUT



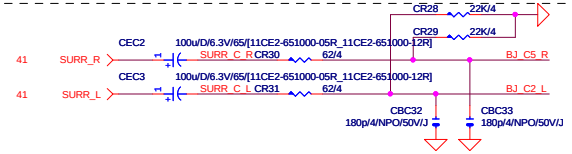
LINE-IN



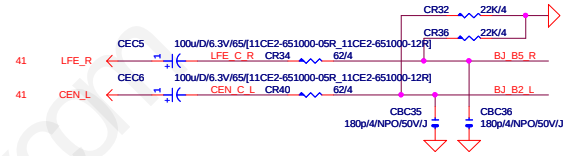
MIC-IN



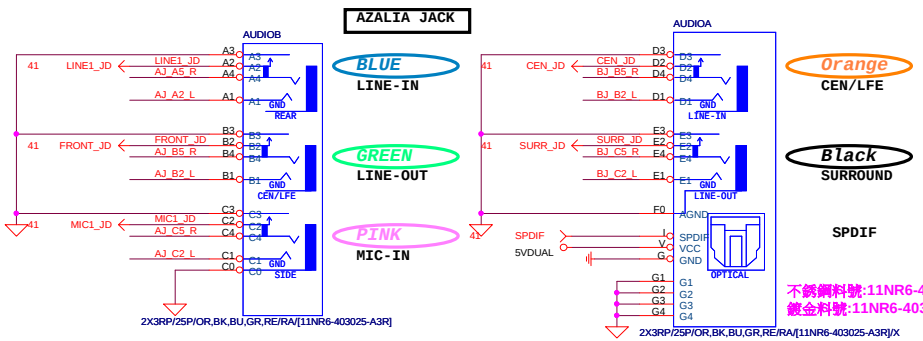
SURROUND



CEN/LFE

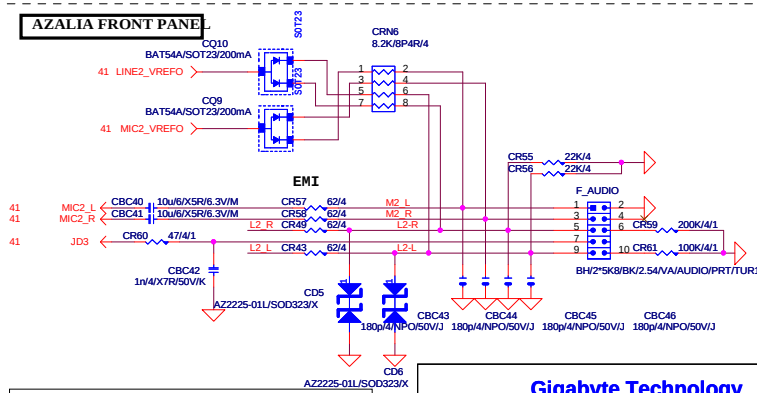


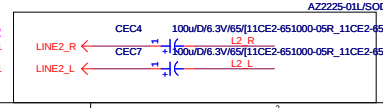
AZALIA JACK



不銹鋼料號:11NR6-403025-A2R
鍍金料號:11NR6-403025-92R

AZALIA FRONT PANEL





Gigabyte Technology

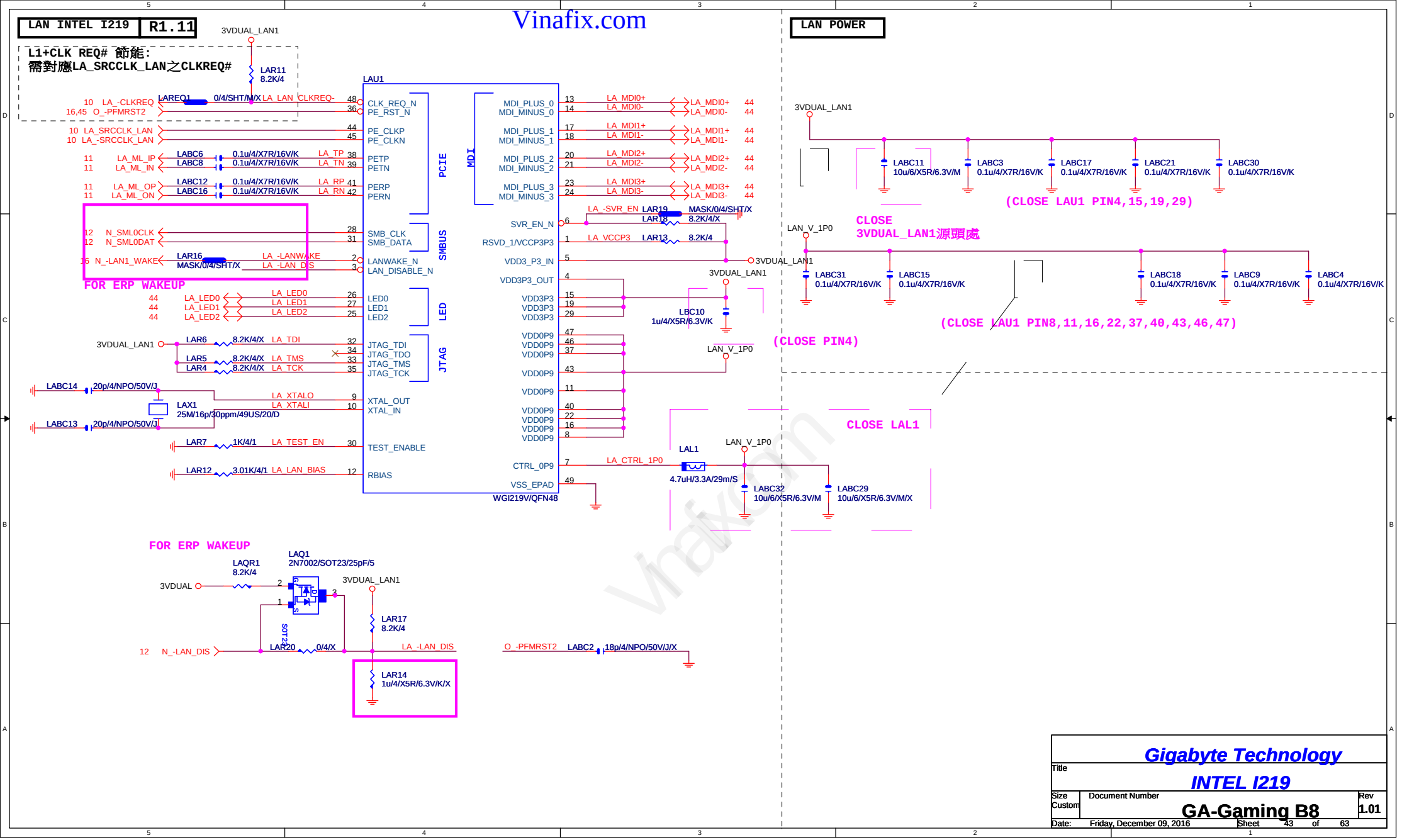
Title: AUDIO JACK

Size: Custom | Document Number: GA-Gaming B8 | Rev: 1.01

Date: Friday, December 09, 2016 | Sheet 42 of 63

LAN INTEL I219 R1.11

L1+CLK REQ# 節能:
需對應LA_SRCCLK_LAN之CLKREQ#



LAN POWER

Gigabyte Technology		
Title: INTEL I219		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 43 of 63	

USB_LAN CONNECTOR R1.11

RMA ESD PROTECT

note:可變更USB NAME

可變

N_+USBP6 1 6 N_-USBP6
2 5 FUSEVCC_R1
N_-USBP5 3 4 N_+USBP5

LAUESD1
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R_10DEF-550099-20R]

SOT23

LAD1
11,37,39,55 N_-USBOC_R 3 1 FUSEVCC_R1
2
BAT54A/SOT23/200mA

USB_LAN CONNECTOR

note:可變更USB NAME

[I219]

USB30_LAN

LABC22
0.1u/4/X7R/16V/K

LA_CN_L1

43 LA_MDI0+
43 LA_MDI0-
43 LA_MDI1+
43 LA_MDI1-
43 LA_MDI2+
43 LA_MDI2-
43 LA_MDI3+
43 LA_MDI3-

LA_CN_L10
LABC25 MASK/0/4/SHT/X

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10

USB3.0

D1 D2 D3 D4

DT DT VBUS D- D+ GND SSRX- SSRX+ GND SSTX- SSTX+

P1 P2

FUSEVCC_R1

11 N_-USBP5
11 N_+USBP5

11 PCH_USB3_RXN5
11 PCH_USB3_RXP5

11 PCH_USB3_TXN5
11 PCH_USB3_TXP5

LAUAC1 PCH_USB3_TXN5C
LAUAC2 PCH_USB3_TXP5C

可變

0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

USB3+LAN/1G/GO,Y/OS/RA/D/G30/[11NR6-702009-X1R]

3VDUAL_LAN1

LAR8
MASK/0/4/SHT/M/X

D1 LA_LED_ACT_TXRX LA_LED0 43
D2 LA_D2 LAR10 330/4 LA_D2_1
D3 LA_LED_LINK100 LAR9 330/4 LA_LED2 43
D4 LA_LED_LINK1000 LAR3 LA_LED1 43

LAFB2
MASK/0/4/SHT/M/X

LABC24
0.1u/4/X7R/16V/K/X

MASK/0/4/SHT/M/X LABC7 0.1u/4/X7R/16V/K

FUSEVCC_R1

11 N_-USBP6
11 N_+USBP6

11 PCH_USB3_RXN6
11 PCH_USB3_RXP6

PCH_USB3_TXN6C LAUAC3
PCH_USB3_TXP6C LAUAC4

11 PCH_USB3_TXN6
11 PCH_USB3_TXP6

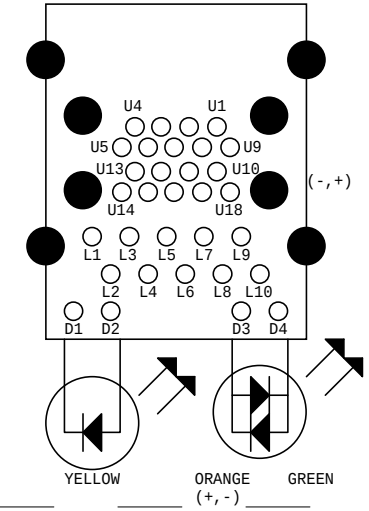
可變

0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

可變

LA_MDI-->100歐姆:[20/4/8/4/20]

USB30_LAN LAYOUT示意圖



Dual Color LED

D4 D3 Green
D4 D3 Orange

Single Color LED

D2 D1 Yellow

PCH_USB3_TXN6C PCH_USB3_TXN5C
PCH_USB3_TXP6C PCH_USB3_TXP5C

NC NC GND NC NC
11
D1 D1 GND D2 D2

LAU3ESD1
AZ1045-04F/MSOP10/[10DE2-501045-10R_10DE2-508808-10R]

PCH_USB3_TXP6C PCH_USB3_TXP5C
PCH_USB3_TXN6C PCH_USB3_TXN5C

note:可變更USB NAME

可變

PCH_USB3_RXN5 PCH_USB3_RXP6
PCH_USB3_RXP5 PCH_USB3_RXN6

NC NC GND NC NC
11
D1 D1 GND D2 D2

LAU3ESD2
AZ1045-04F/MSOP10/[10DE

PCH_USB3_RXP5 PCH_USB3_RXN6
PCH_USB3_RXN5 PCH_USB3_RXP6

LAN_COVER

FOOT PRINT:LAN_COVER

可變
[視SPEC需求]

REV:1.0 REMOVE

USB POWER

note:可變更FUSE

可變

5VDUAL LAUF1 1 2 FUSEVCC_R1

SPR-P260T/6V/8/S

Close to connector
FUSE-0805

1
+ RAU2EC1
100u/OS/D/6.3V/66/A/35m/[11CO2-661000-09R_11CO2-661000-06R]

EMI SHORT PAD

PS:視EMI需求

LAR24 MASK/0/4/SHT/M/X

LAN POWER

note: lan power連接及電流

可變

3VDUAL_LAN1 LAPW1 MASK/0/4/SHT/20/X 3VDUAL_PCH *
LAPW2
0/4/X
3VDUAL *

Gigabyte Technology		
Title: LAN CONNECTOR-I219		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 44 of 63	

ASM2142 USB3 Host Rev0.3
PCIE Gen3 X2

Color markers can be changed by model

ASM2142 USB3.1

Base on ASM2142 0.1 Reference SCH

PCH PCIe* Controller Lane Reversal / base on spec

To PCIE host.

11 PCH_PCIE_IP2	0.22U/4/X7R/16V/K	SSAC1	PCIE_IP1C
11 PCH_PCIE_IN2	0.22U/4/X7R/16V/K	SSAC2	PCIE_IN1C
11 PCH_PCIE_IP1	0.22U/4/X7R/16V/K	SSAC4	PCIE_IP2C
11 PCH_PCIE_IN1	0.22U/4/X7R/16V/K	SSAC3	PCIE_IN2C
11 PCH_PCIE_OP2	0.22U/4/X7R/16V/K	SSAC8	PCIE_OP1C
11 PCH_PCIE_ON2	0.22U/4/X7R/16V/K	SSAC14	PCIE_ON1C
11 PCH_PCIE_OP1	0.22U/4/X7R/16V/K	SSAC15	PCIE_OP2C
11 PCH_PCIE_ON1	0.22U/4/X7R/16V/K	SSAC16	PCIE_ON2C

From PCIE host.

SSAR30 MASK/0/4/SHT/M/X — SSA120V

SSAC20 4.7U/6/X5R/6.3V/K

SSAU1 — ASM2142/QFN64

-SRCCLK_USB31A 10 — From PCIE CLK

Close to ASM1142 IC

SSAD1 1N4148W/SOD123/300mA — SSAR11 100K/4/1 — SSAC5 1u/4/X5R/6.3V/K

SPI_DO=>CSEL0: SSA_SPICK, SSA_SPIDO, SSA_SPICS-, SSA_SPIDI

UART_RX=>CSEL1: SSA_PORST-, SSA_UARTRX, SSA_UARTTX

*1021

SSAR31 MASK/0/4/SHT/M/X — SSA120V — SSAC27 4.7U/6/X5R/6.3V/K

To USB Conn

SSA_XI — SSAC19 12P/4/NPO/50V/J — SSAX1 — SSA_XO — 20M/16p/30ppm/49US/20/D/[11XH5-820000-10R]

SSATST_EN SSAR5 4.7K/4/1 — VCC3

PCIE_RST- — O_-PFMRST2 16,43

OCIA1B — OCIA1B 47

OCIA1A — OCIA1A 46

SSA_PPCB SSAR15 8.2K/4/1/X — VCC3

SSA_PPCA SSAR16 8.2K/4/1/X — VCC3

N_-PCIE_WAKE — N_-PCIE_WAKE 12,19,20,32,35

To OC circuit

SS20A_DM2 / SS20A_DP2 / VCCSUS_VCCLU

SSA120_SUS

SS20A_DM1 / SS20A_DP1

3VDUAL

To USB Conn

ASM 2142 Option

VCC25V	SSAR34	0/4	
3VDUAL	SSAR33	0/4/X	VCCSUS_VCCLU
VCC25V	SSAR38	0/4	
VCC3	SSAR37	0/4/X	VSSA

ASM2142 SSAR34,SSAR38

SSAQ1 — 3VDUAL — SSA120_SUS

R1 SSAR22 316/4/1 — SSAQ1_FB — SSAC25 22P/4/NPO/50V/J — SSAC26 10u/6/X5R/6.3V/M

SSAC24 2.2u/4/X5R/6.3V/M — Vout=0.8*(R1+R2)/R2 — AP7365-WG-7/SOT23-5/600mA — R2 SSAR23 1K/4/1

ASM2142 SSAR22=316,1.05V,50mA

SSA120V — SSAC30–SSAC32 0.1u/4/X7R/16V/K — Pin 1/12/33

SSA120_SUS — SSAC33–SSAC34 0.1u/4/X7R/16V/K — Pin 21/34

VCC3 — SSAC35–SSAC36 0.1u/4/X7R/16V/K — Pin 4/32

3VDUAL — SSAC37–SSAC38 0.1u/4/X7R/16V/K — Pin 24/20

VCCSUS_VCCLU

SSA120V — SSAC40–SSAC42 2.2u/4/X5R/6.3V/M — Pin 35/47/52

VSSA — SSAC43–SSAC46 2.2u/4/X5R/6.3V/M — Pin 38/44/55/62

VCC3 — SSAR25 8.2K/4 — SSAU3_EN — SSAC7 1u/4/X5R/6.3V/K — SSAR35 8.2K/4/X

ASM2142 SSAR28=31.6K,1.05V,800mA

SSAU3 (RT9018B-18GSP/SO8/3A/[10GL2-309018-31R_10GL2-305103-01R])

SSAR28 31.6K/4/1 — SSAC11 — SSAC13 — SSAC12 1u/4/X5R/6.3V/K — 22u/8/X5R/6.3V/M

SSAR29 100K/4/1 — 0.1u/4/X7R/16V/K/X

SSAR24 2.2/4 — SSAC6 1u/4/X5R/6.3V/K — SSAC10 22u/8/X5R/6.3V/M — SSAC9 1u/4/X5R/6.3V/K

【技術通報R&D技術通報156】
RT9018(RICHTEK)與NCT3730(NUVOTON),
EM5103GE(EMC)做共用,針對PIN7(FB)分壓阻值部份
須做修改為100K以上電阻值

12.1K/4/1 SSAR18 SSA_REXT

3VDUAL — SSAR36 8.2K/4 — SSA_SMI-

VCC3 — SSAR27 8.2K/4 / SSAR32 8.2K/4/1/X — SSA_SPICK

VCC3 — SSAR4 8.2K/4 / SSAR3 2K/4/1/X — SSA_UARTRX

UART_RX=>CSEL1

VCC3 — SSAR8 8.2K/4 / SSAR7 2K/4/1/X — SSA_UARTTX

VCC3 — SSAR1 8.2K/4 / SSAR2 2K/4/1/X — SSA_SPIDO

SPI_DO=>CSEL0

ASM2142 Option

SSAQ3 — VCC3

R1 SSAR41 2.15K/4/1 — SSAQ3_FB — SSAC47 22P/4/NPO/50V/J — SSAC48 10u/6/X5R/6.3V/M — VCC25V

SSAC49 2.2u/4/X5R/6.3V/M — Vout=0.8*(R1+R2)/R2 — AP7365-WG-7/SOT23-5/600mA — R2 SSAR40 1K/4/1

ASM2142 2.5V, 300mA

VCC3 — SSAU2 — SSAC21 0.1u/4/X7R/16V/K

SSA_SPICS- / SSA_SPIDI / SSA_SPIWP- — SSAR6 8.2K/4 — VCC3

SSA_SPICK / SSA_SPIDO

4M/SPI/SO8/200mil/S[10HP4-112540-30R]

CSEL1	CSEL0	
1	1	External 20MHz Crystal (Asynchronous)
0	1	48MHz clock input (Synchronous)
X	0	Reseved for Test

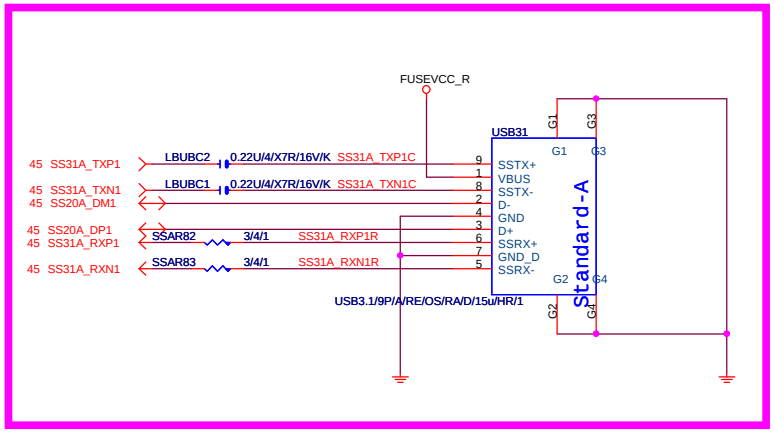
GIGABYTE™

Title: ASM2142

Size: Custom | Document Number: GA-Gaming B8 | Rev: 1.01

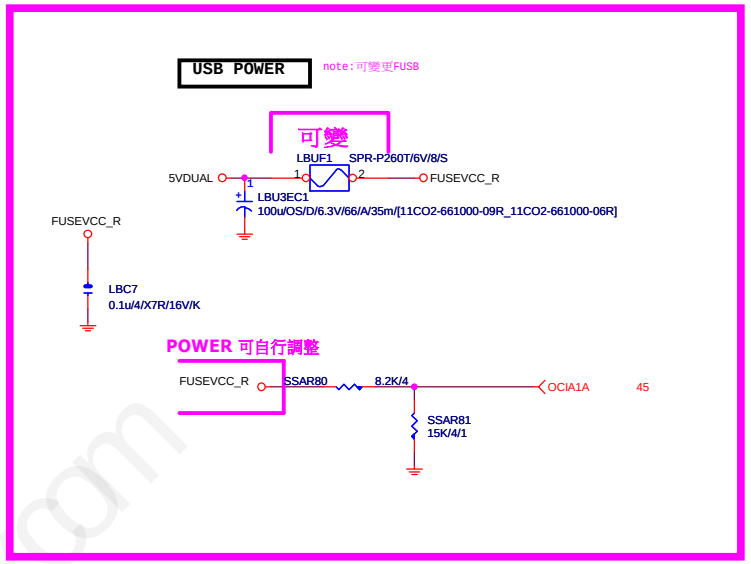
Date: Friday, December 09, 2016 | Sheet 45 of 63

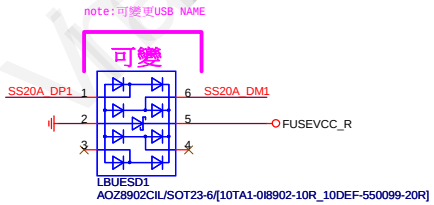
ASM2142 USB31 Host Rev0.3

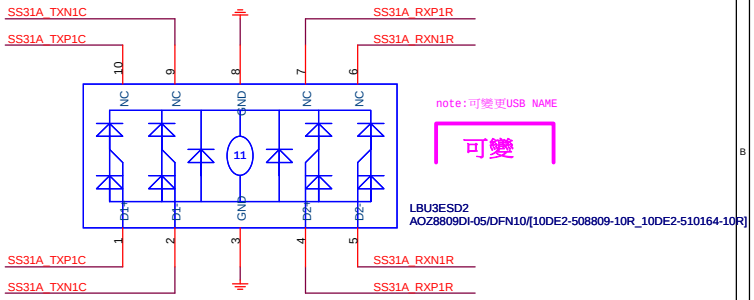


USB31 TYPE A Connector which chooses for project demand

USB 3.1 Red
架高，Lotus.





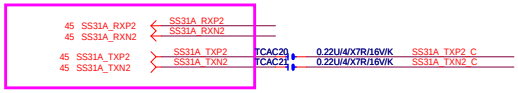


GIGABYTE™

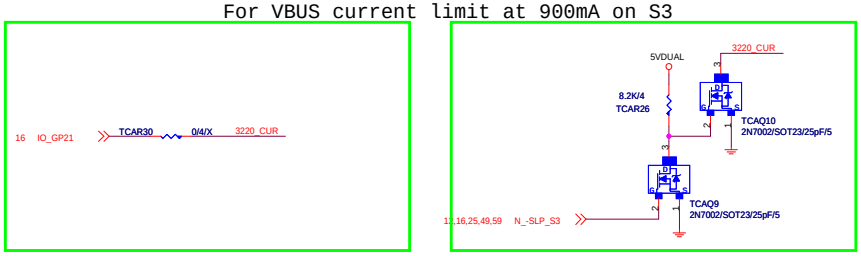
Title: TI Type C port A		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 46 of 63	

ASM2142 USB31 Host Rev0.1

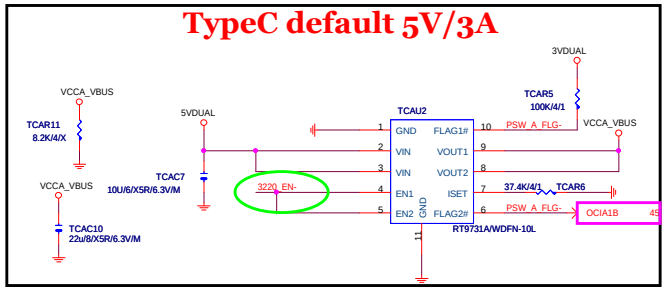
USB 3.x SuperSpeed

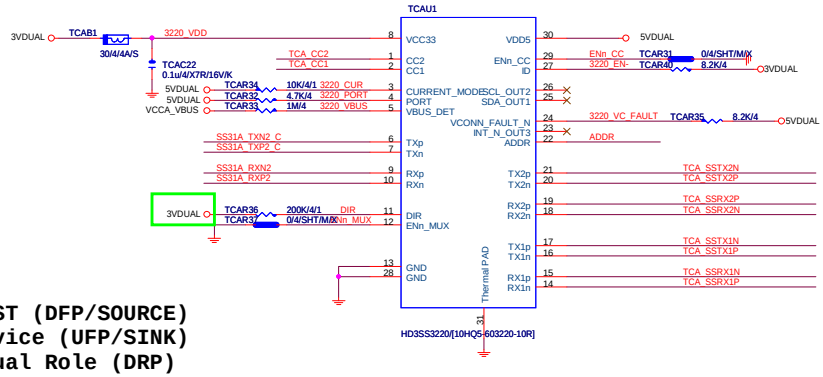


For VBUS current limit at 900mA on S3



TypeC default 5V/3A



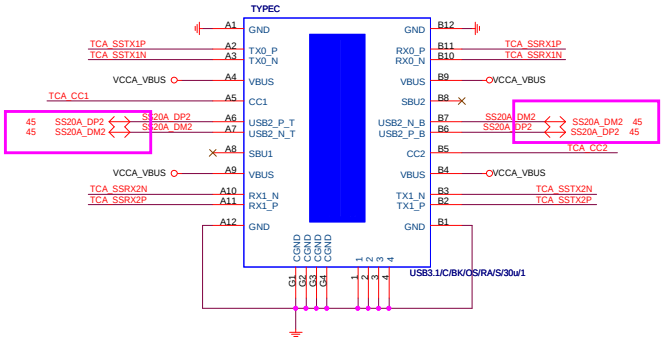


SWAP(check firmware)

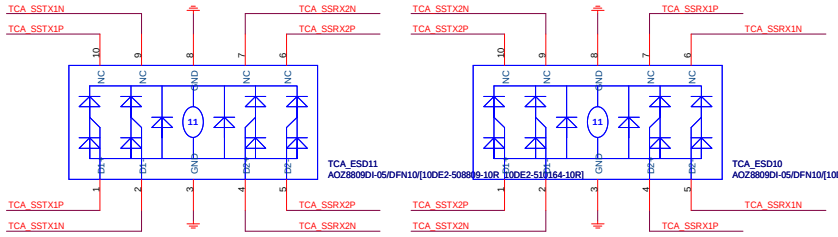
PORT
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)

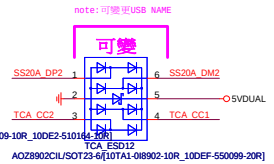
CURRENT MODE
L - Default (900mA) / Pull down to GND or NC
M - Medium (1.5A) / Pull up to VDD 500K
H - High (3.0A) / Pull up to VDD 10K

Color markers can be changed by model



USB2.0 can be used the same source





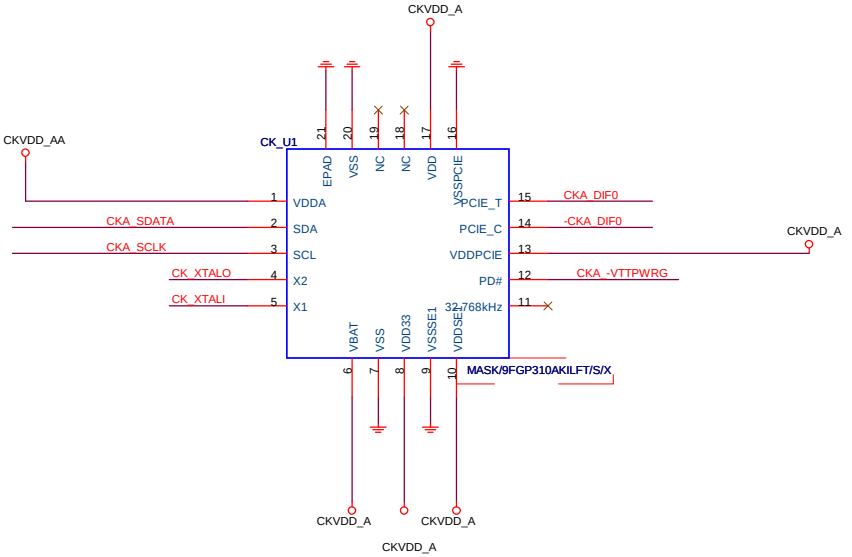
GIGABYTE™

Title	TI HD3SS3212	
Size C	Document Number GA-Gaming B8	Rev 1.01
Date: Friday, December 09, 2016	Sheet 47 of 63	

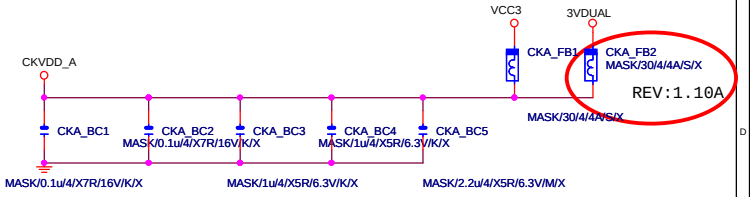
REV:0.2

IDT9FGP310

REV:1.0 MASK

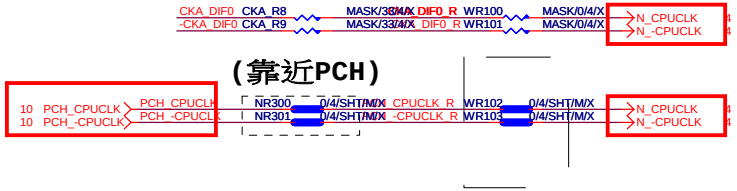


REV:1.0 MASK

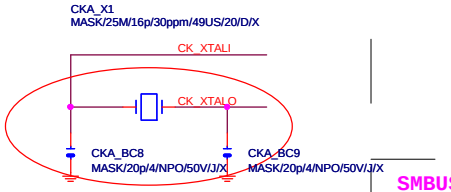


(靠近cpu)

(靠近PCH)

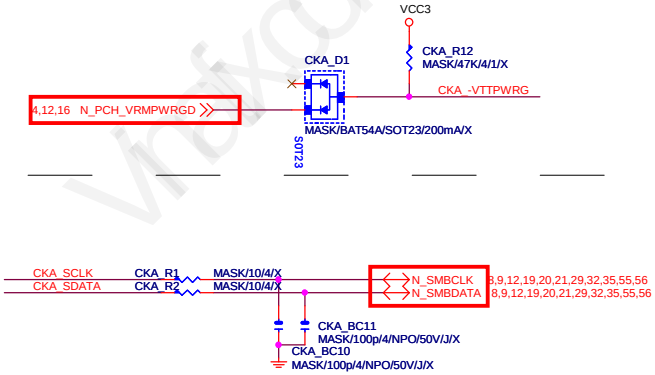


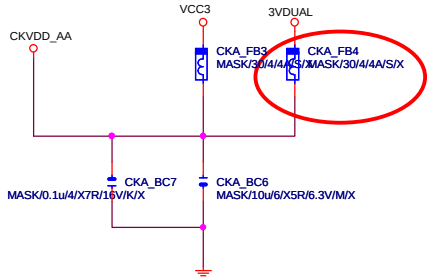
REV:1.0 MASK



SMBUS

REV:1.0 MASK



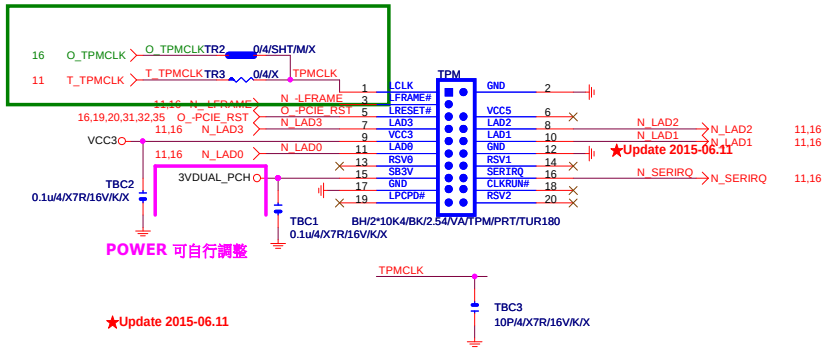


*可變，依需求上件不上件。

GIGABYTE™

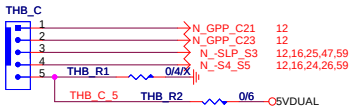
Title: IDT9FGP320_CLK		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 48 of 63	

TPM CONNECT



Thunderbolt

★Update 2015-12-29



PH/1*5/BK/2.54/VA/D/[11NH5-040105-41R_11NH5-040105-42R]

Footprint update "WAFER-1X5P"

Gigabyte Technology		
Title: FP,F_USB,USB PWR,BZ		
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
Date: Friday, December 09, 2016	Sheet 49 of 63	

Rev: 0.8

FRONT PANEL

★Update 2016.06.15

VCC, VCC3, VCC
FPR22 8.2K/4/X
FPR6 330/6
FPR1 330/6/X
FPBC1 0.01u/4/X7R/25V/K/X
5VDUAL
FPR2 330/6
MPD+
3VDUAL_PCH
FPR3 8.2K/4
16

F_PANEL

HD+	1	HD+	MSG/PD+	2	MPD+
-HDLED	3	HD-	MSG/PD-	4	MPD- → MPD-
	5	GND	PW+	6	-PWRBT_1
12 N_-SYS_RST → FPR5 100/4/1 -RST	7	RESET	PW-	8	
	9	CI-			
FPBC2 0.01u/4/X7R/25V/K -CASEOPEN	11	CI+			
			SP+	14	VCC
MPD+	15	PWR+	NC	16	
MPD-	17	PWR-	NC	18	
	19	PWR-	SP-	20	SPK-

FPR9 33/4 → -PWRBTSW 16
FPC1 0.01u/4/X7R/25V/K/X
FPBC3 0.01u/4/X7R/25V/K

BH/2*10K10,12,13/BK/2.54/VA/PA/[11NH3-000210-F1R_11NH3-000210-F2R]

Update 2015.01.08
Footprint=F_PANEL-100

CASE OPEN

12,14 N_RTCVDD → FPR8 1M/4 → -CASEOPEN → -CASEOPEN 16
FPBC4 0.01u/4/X7R/25V/K

FPESD1

-PWRBT_1	1	6	-PWRBT_1
	2	5	3VDUAL_PCH
-RST	3	4	-HDLED

★Update 2015-02-11

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

SATA/M.2 LED

31 -M2S_LED →
13 N_-SATALED →
FPD2 BAT54A/SOT23/200mA SOT23
-HDLED

Fix some M.2 cause HD_LED always on.
★Update 2016.06.15

SPEAKER

For SPKR voltage issue. FPQ6=>2222, FPQ7=>7002

VCC
FPD1 1N4148W/SOD123/300mA
VCC3
FPR16 1K/4/1/X *
FPQ6 SOT23
SPK-
FPR13 75/4/1 *
FPR14 75/4/1
FPR15 8.2K/4
N_SPKR 12,16
MMBT2222A/SOT23/600mA/40
FPQ5
MMBT2222A/SOT23/600mA/40
S0T23
VCC
FPR17 1K/4/1
FPR18 8.2K/4
FPQ7
2N7002/SOT23/25pF/5
S0T23
16 BEEP-

For SPKR voltage issue. FPQ6=>2222, FPQ7=>7002

Gigabyte Technology		
Title: FRONT PANEL		
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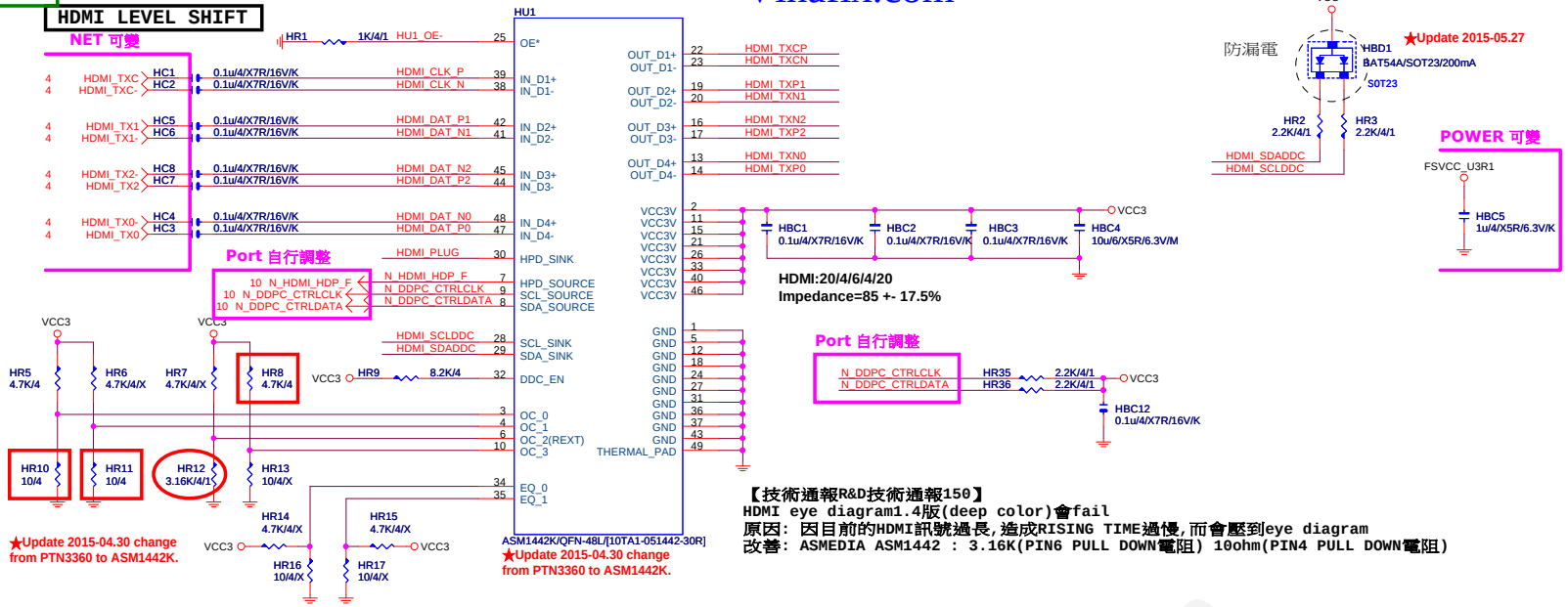
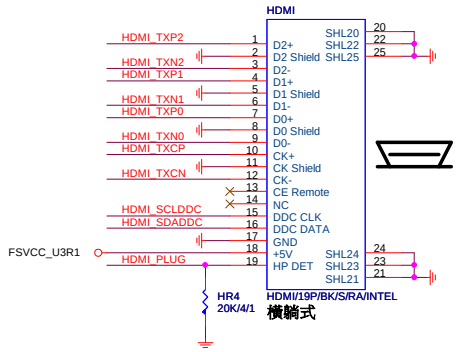
Rev: 0.73

HDMI LEVEL SHIFT





【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K

GIGABYTE			
Title: FP,F_USB,USB PWR,BZ			
Size: Custom	Document Number: GA-Gaming B8		Rev: 1.01
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Rev: 0.8

DVI CONN

DVI:20/4/6/4/20
Impedance=85 +- 17.5%

NET 可變

DVI_TXC / DVI_TXC-
DVI_TX0 / DVI_TX0-
DVI_TX1 / DVI_TX1-
DVI_TX2 / DVI_TX2-

VBC1 0.1u/4/X7R/16V/K → DVITXC+ → VR1 680/4/1
VBC2 0.1u/4/X7R/16V/K → DVITXC- → VR2 680/4/1
VBC3 0.1u/4/X7R/16V/K → DVITX0+ → VR3 680/4/1
VBC4 0.1u/4/X7R/16V/K → DVITX0- → VR4 680/4/1
VBC5 0.1u/4/X7R/16V/K → DVITX1+ → VR7 680/4/1
VBC7 0.1u/4/X7R/16V/K → DVITX1- → VR8 680/4/1
VBC8 0.1u/4/X7R/16V/K → DVITX2+ → VR9 680/4/1
VBC9 0.1u/4/X7R/16V/K → DVITX2- → VR10 680/4/1

DVI_G

VCC
防漏電
★Update 2015.05.27
VD1 BAT54A/SOT23/200mA
SOT23

VR14 2.2K/4/1
VR13 2.2K/4/1
DVI_SDA
DVI_SCL

VQ1 2N7002/SOT23/25pF/5
SOT23

10 N_DDPD_CTRLCLK
10 N_DDPD_CTRLDATA
VR5 2.2K/4/1
VR6 2.2K/4/1
VCC3
VBC6 0.1u/4/X7R/16V/K/X

VCC VR16 8.2K/4 VQ1_2

VQ2 2N7002/SOT23/25pF/5
VCC VR17 1K/4/1 VQ2_2
N_DDPD_CTRLCLK

VQ3 2N7002/SOT23/25pF/5
VCC VR18 1K/4/1 VQ3_2
N_DDPD_CTRLDATA

VQ4 2N7002/SOT23/25pF/5
VCC VR19 8.2K/4 VQ4_2
VR20 1M/4
N_DVI_HDP_F
N_DVI_HDP_F 10

Close to connector

VESD2
DVITX1+ DVITX2-
DVITX1- DVITX2+

VESD1
DVITXC+ DVITX0+
DVITXC- DVITX0-

AZ1045-04F/MSOP10/[10DE2-501045-10R_10DE2-508808-10R]

NET 可變
FSVCC_U3R1
VBC10 0.1u/4/X7R/16V/K

Close to connector

NET 可變
VESD3
DVI_SDA
DVI_HP
DVI_SCL
FSVCC_U3R1

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

架高式 DVI-D

★Update 2015-03.24
11NR6-501024-R1R(Golden),
11NR6-501024-T1R(Normal)

FSVCC_U3R1
DVI_SCL
DVI_SDA
DVI_HP
DVITXC-
DVITXC+
VR15 20K/4/1

DVITX0- 17 TX0-
DVITX0+ 18 TX0+
DVITX1- 9 TX1-
DVITX1+ 10 TX1+
DVITX2- 1 TX2-
DVITX2+ 2 TX2+
3 SHLD24
11 SHLD13
19 SHLD05
12 TX3-
13 TX3+
4 TX4-
5 TX4+
20 TX5-
21 TX5+
6 DDCC
7 DDCD
14 VDDC
15 GND
22 SHLDC
24 TXC-
23 TXC+
8 VSYNC
16 HPD

M1 SHIELD1
SHIELD2 M3
SHIELD2 M4
SHIELD2 M2
COMMON

DVI
DVI-D-HIGH

DVI-D/24P/SC/RA/D/SH/[11NR6-501024-T1R]
P/N CHECK.

GIGABYTE		
Title: DVI		
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Title	IT8793	
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
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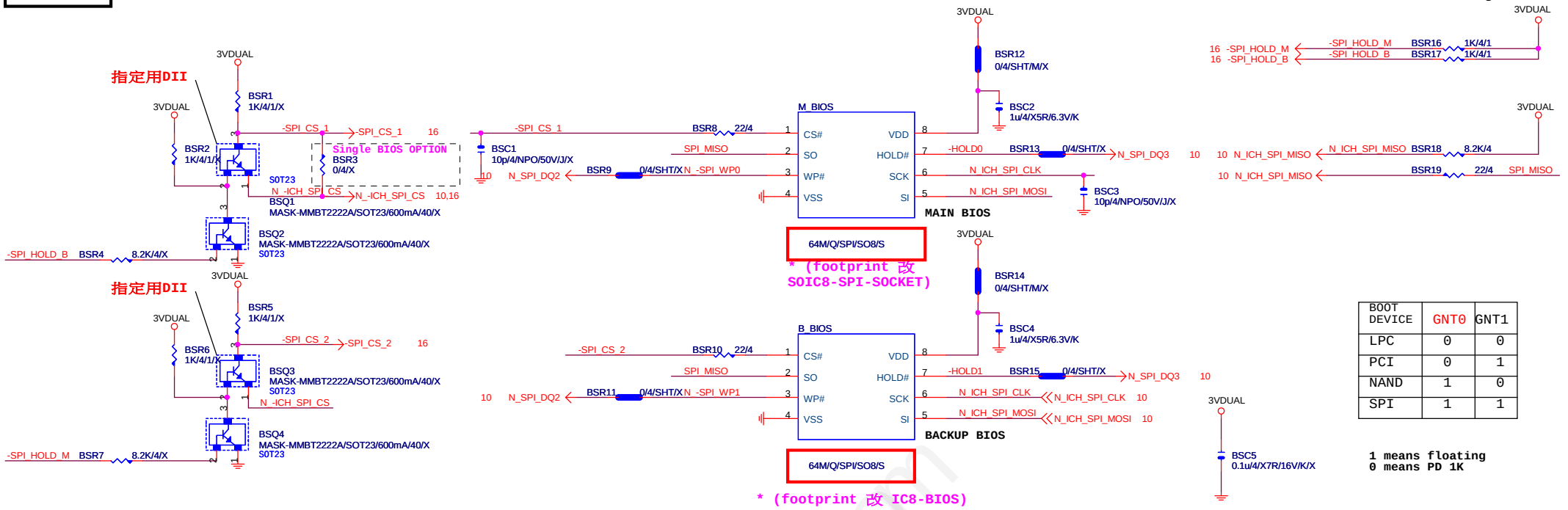
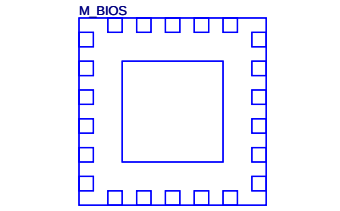
DUAL BIOS



BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K



LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]/X

* 試產先上 , PVT 移除

Gigabyte Technology		
Title: BIOS		
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USB_DAC_A

F_USB30_1

TO USB_DAC PORT
USB_DAC5V_C
DACC_Q6
VOUT VIN
GND
FLG- EN
RT9742CNGJ5/SOT23-5
From Switching
DAC5_C
N_-USBOC_R
DACC_Q1EN

TO USB_DAC PORT
USB_DAC5V_C
DACC_Q7
VOUT VIN
GND
FLG- EN
RT9742CNGJ5/SOT23-5
From 5VDUAL
5VDUAL
N_-USBOC_R
DACC_Q2EN

USB_DAC_C

KB_MS_USB0

+12V
DACC_C3 0.1u/4/X7R/16V/K
DACC_R3 100K/4/1
DACC_U1
VIN BOOT
SW_NODE
SW_NODE
EN FB
GND VCC
EGND
RT8288AZSP/SOP8
DACC_C1 0.1u/4/X7R/16V/K
C_SW_NODE
DACC_L1 4.7UH/3.3A/29m/S
C_FB
C_UDACVCC
DACC_R21 20K/4/1
DACC_R1 10K/4/1
DACC_R2 1.91K/4/1
DACC_C2 0.1u/4/X7R/16V/K
DACC_C4 22u/8/X5R/6.3V/M
DACC_C5 22u/8/X5R/6.3V/M
DAC5_C
DACC_C2請跟PIN8.PIN9一起下GND

TO USB_DAC PORT
USB_DAC5V_C
DACC_Q1
VOUT VIN
GND
FLG- EN
RT9742CNGJ5/SOT23-5
From Switching
DAC5_C
DACC_R7 100K/4/1/X
1,37,39,44 N_-USBOC_R
N_-USBOC_R
Connector to USB OC PIN
DACC_Q1EN
DACC_R4 8.2K/4/1
DACC_R10 15K/4/1
DACC_C8 0.1U/4/Y5V/16V/Z/X

TO USB_DAC PORT
USB_DAC5V_C
DACC_Q2
VOUT VIN
GND
FLG- EN
RT9742CNGJ5/SOT23-5
From 5VDUAL
5VDUAL
DACC_R8 8.2K/4/1
1,37,39,44 N_-USBOC_R
N_-USBOC_R
Connector to USB OC PIN
DACC_Q2EN
DACC_R5 8.2K/4/1
DACC_R15 15K/4/1
DAC5_C
DACC_R6 8.2K/4/1/X
28 P_EN
DACC_R14 0/4/SHT/M/X
DACC_R9 8.2K/4/X
DACC_C7 1u/4/X5R/6.3V/K/X
DACC_Q3 2N7002/SOT23/25pF/5

5VDUAL
DACC_R11 8.2K/4/1
DACC_Q4
DACC_Q1EN
DACC_Q2EN
DACC_PWR_DIS
N_GPP_C12 12
BAT54C/SOT23/200mA
DACC_R12 15K/4/1
DAC power disable by resume GPIO

DACC_Q1EN
DACC_Q2EN
DACC_R13 0/4/SHT/M/X
DACC_Q5 2N7002/SOT23/25pF/5
DACC_C9 1u/4/X5R/6.3V/K/X

USB_DAC5V_C
USB_DAC5V_C
DACC_C6 0.1u/4/X7R/16V/K
DACC_EC1 100u/OS/D/6.3V/66/A/35m/[11CO2-661000-09R_11CO2-661000-06R]
C_UDACFB
C_UDACFB

0X28 =25%xVCC

VCC3
3VDUAL
DCCA_R15 30/4/4A/S
DCCA_R16 30/4/4A/S/X
DCCA_C10 0.1u/4/X7R/16V/K
DCCA_U2
VDD VREF1
B_SEL VREF2
GND VREF3
SDA SCL
NCT3933U/SOT23-8
DCCA_R17 3.9K/4/1
DCCA_R18 1.3K/4/1
C_UDACFB
C_UDACFB
8,9,12,19,20,21,29,32,35,48,56
N_SMBDATA
DCCA_R19 0/4/SHT/M/X
DCCA_R20 0/4/SHT/M/X
N_SMBCLK
8,9,12,19,20,21,29,32,35,48,56

GIGABYTE™

Title: DAC POWER		
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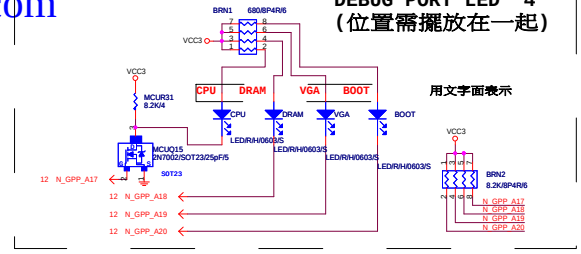
第一區 LED

Rev 0.61

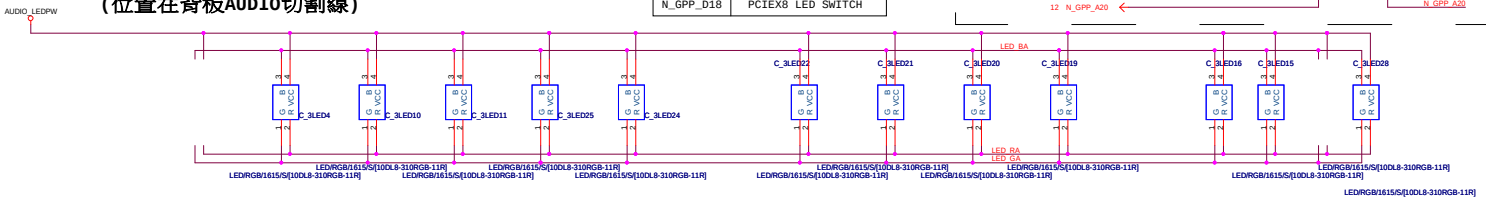
LED GPIO PIN DEFINE

N_GPP_A17	CPU DEBUG
N_GPP_A18	DDR DEBUG
N_GPP_A19	VGA DEBUG
N_GPP_A20	BOOT DEBUG
N_GPP_A21	XMP LED SWITCH
N_GPP_A22	TURBO LED SWITCH
N_GPP_D15	LED_C LED SWITCH
N_GPP_D17	PCIEX16 LED SWITCH
N_GPP_D18	PCIEX8 LED SWITCH

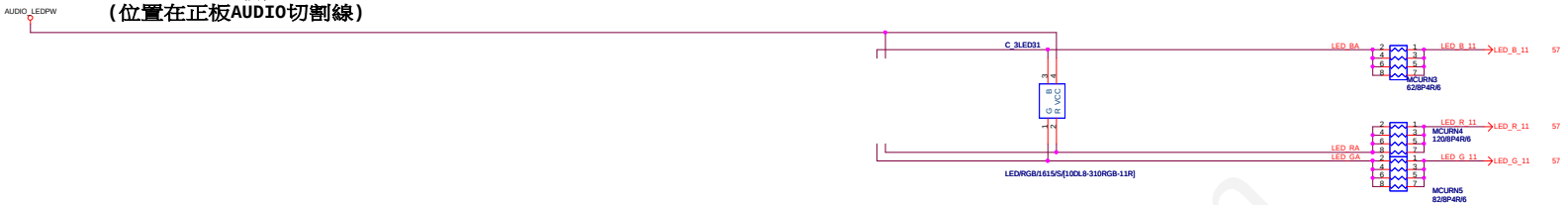
DEBUG PORT LED *4
(位置需擺放在一起)



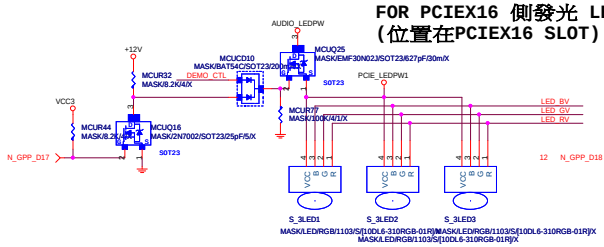
FOR AUDIO 正發光 LED*40
(位置在背板AUDIO切割線)



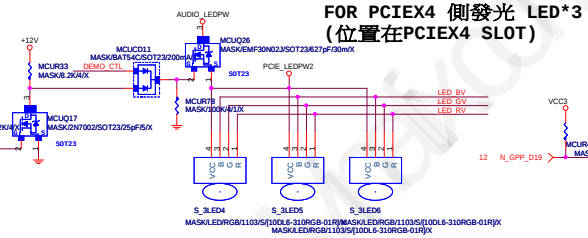
FOR AUDIO 正發光 LED*40
(位置在正板AUDIO切割線)



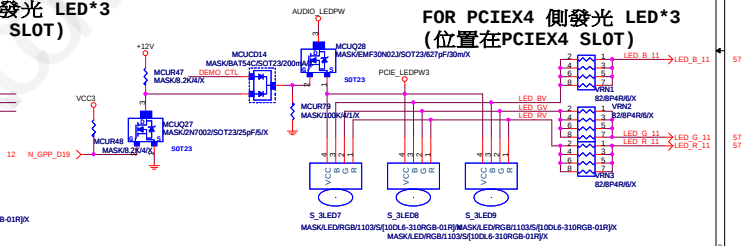
FOR PCIEX16 側發光 LED*3
(位置在PCIEX16 SLOT)



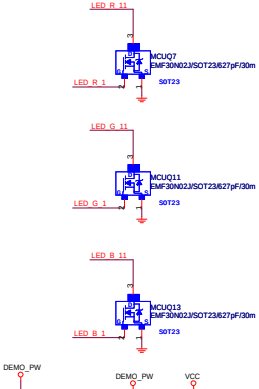
FOR PCIEX4 側發光 LED*3
(位置在PCIEX4 SLOT)



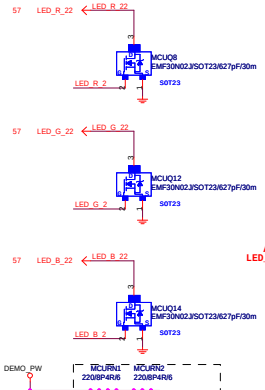
FOR PCIEX4 側發光 LED*3
(位置在PCIEX4 SLOT)

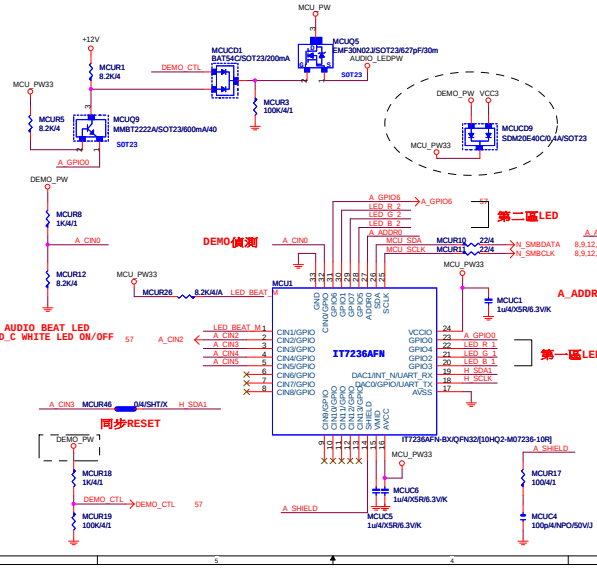


第一區 LED CONTROL

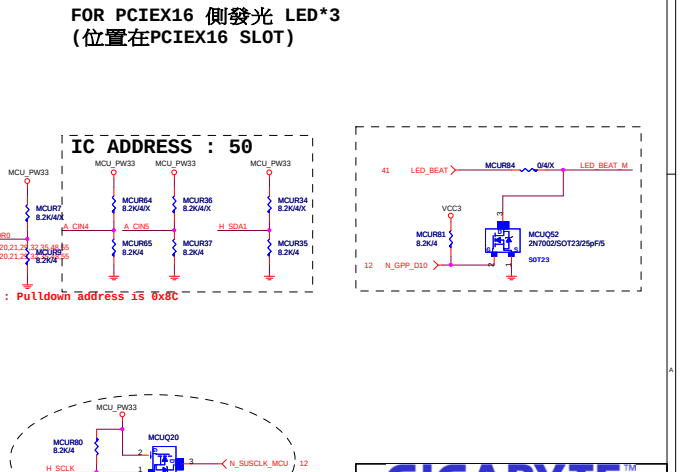


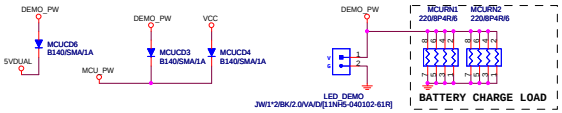
第二區 LED CONTROL





FOR PCIEX16 側發光 LED*3
(位置在PCIEX16 SLOT)





GIGABYTE

Title	CPU/AUDIO/PCIE LED	
Size: Custom	Document Number: GA-Gaming B8	Rev: 1.01
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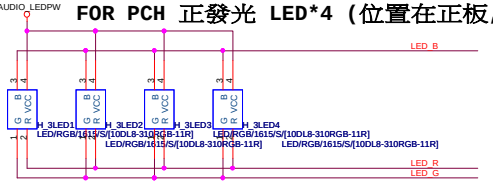
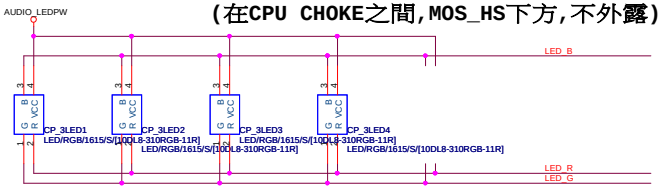
第二區 LED

Rev 0.61

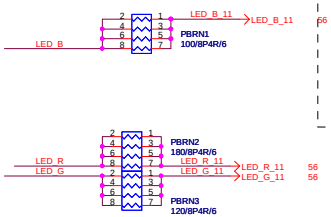
FOR PCH 正發光 LED*4 (位置在正板,依據PCH_HS設計擺放)

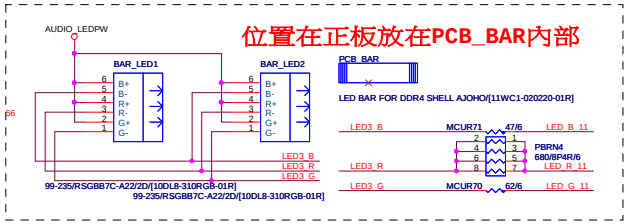


FOR CPU 正發光 LED*5
(在CPU CHOKE之間,MOS_HS下方,不外露)

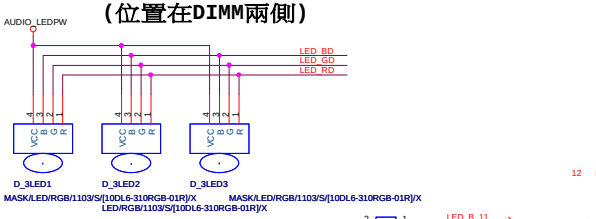


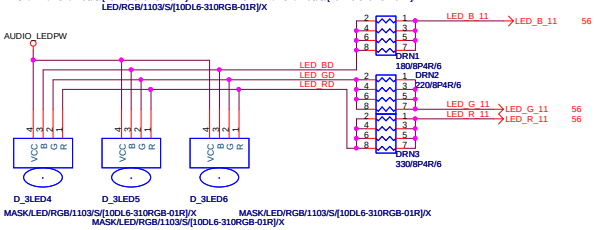
FOR PCB 正發光 LED*16
(位置在PCB下方背板邊條)



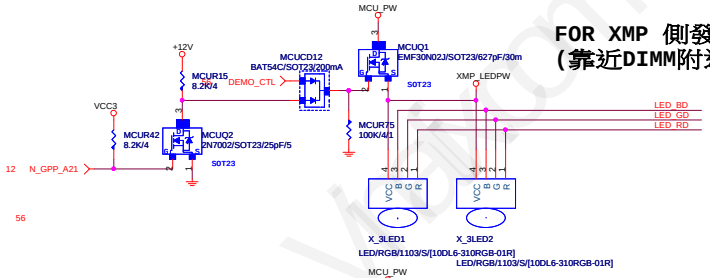


FOR DIMM 側發光 LED*6
(位置在DIMM兩側)

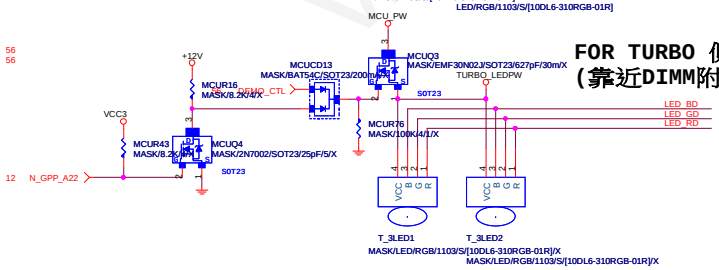




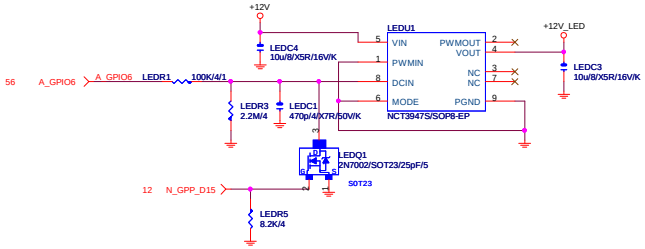
FOR XMP 側發光 LED*2
(靠近DIMM附近放背板鏤空)

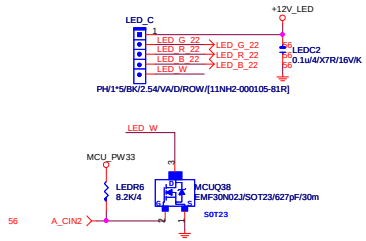


FOR TURBO 側發光 LED*2
(靠近DIMM附近背板鏤空)



FOR 燈條 LED (LED_C放在PCB左邊板邊位置)



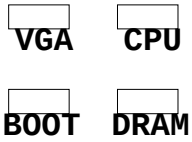


GIGABYTE			
Title	PCH/MODEL/DDR LED		
Size: Custom	Document Number: GA-Gaming B8		Rev: 1.01
Date: Friday, December 09, 2016	Sheet 57 of 63		

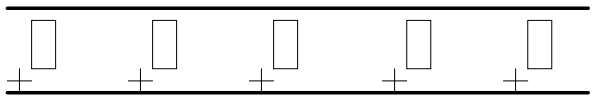
RGB LED LAYOUT 注意事項 :

1. **Debug LED** 文字面表示如右所示 **(LED請擺在一起)**
2. 背板 **RGB LED** 方向整板請統一如下
   (整板正極可統一朝下或朝上)
3. 正板 **RGB LED** 統一方向即可
4. **LED RGB 10PCS** 以上走**20mils**
   LED RGB 10PCS 以下空間問題可以走**10mils**
   LED電源一律走**20mils**
5. **MCU LED** 出**pin**的走線**4mils**,如:**LED_R_1,LED_G_1,LED_B_1 .....**
   過晶體的走線**20mils**,包含過排組到**LED**的走線如:**LED_R_11,LED_G_11,LED_B_11..**
6. **XMP/TURBO/G1.GAMING** 側發光 **LED** 位置如下

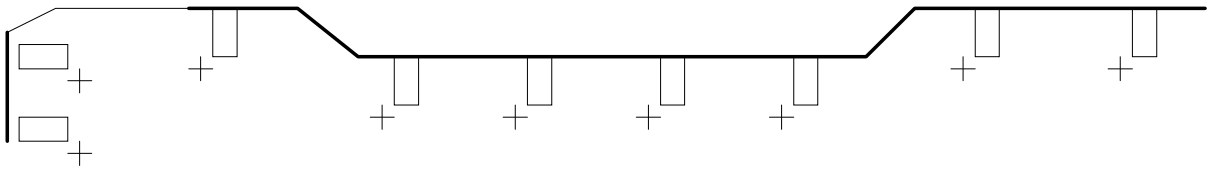
Debug LED 文字面 (單色LED)



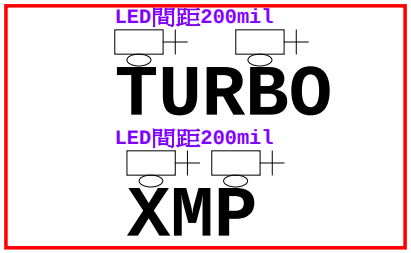
PCB板邊透光model name鏤空+背面 RGB LED



Audio Ground切割線+背面 RGB LED



"Turbo", "XMP"字樣(分開控制) 鏤空+背面 RGB側發光 LED



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Title: MODEL/PCB LED		
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EMI/ESD R0.1

CLOSE SIO

EMIC1
100p/4/NPO/50V/J/X

12,16,25,47,49 N_-SLP_S3

EMIC2
100p/4/NPO/50V/J/X

12,16,24,26,49 N_-S4_S5

CLOSE PCH

EMIC4
100p/4/NPO/50V/J/X

4,12 N_CPUPWROK

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Title	EMI/ESD	
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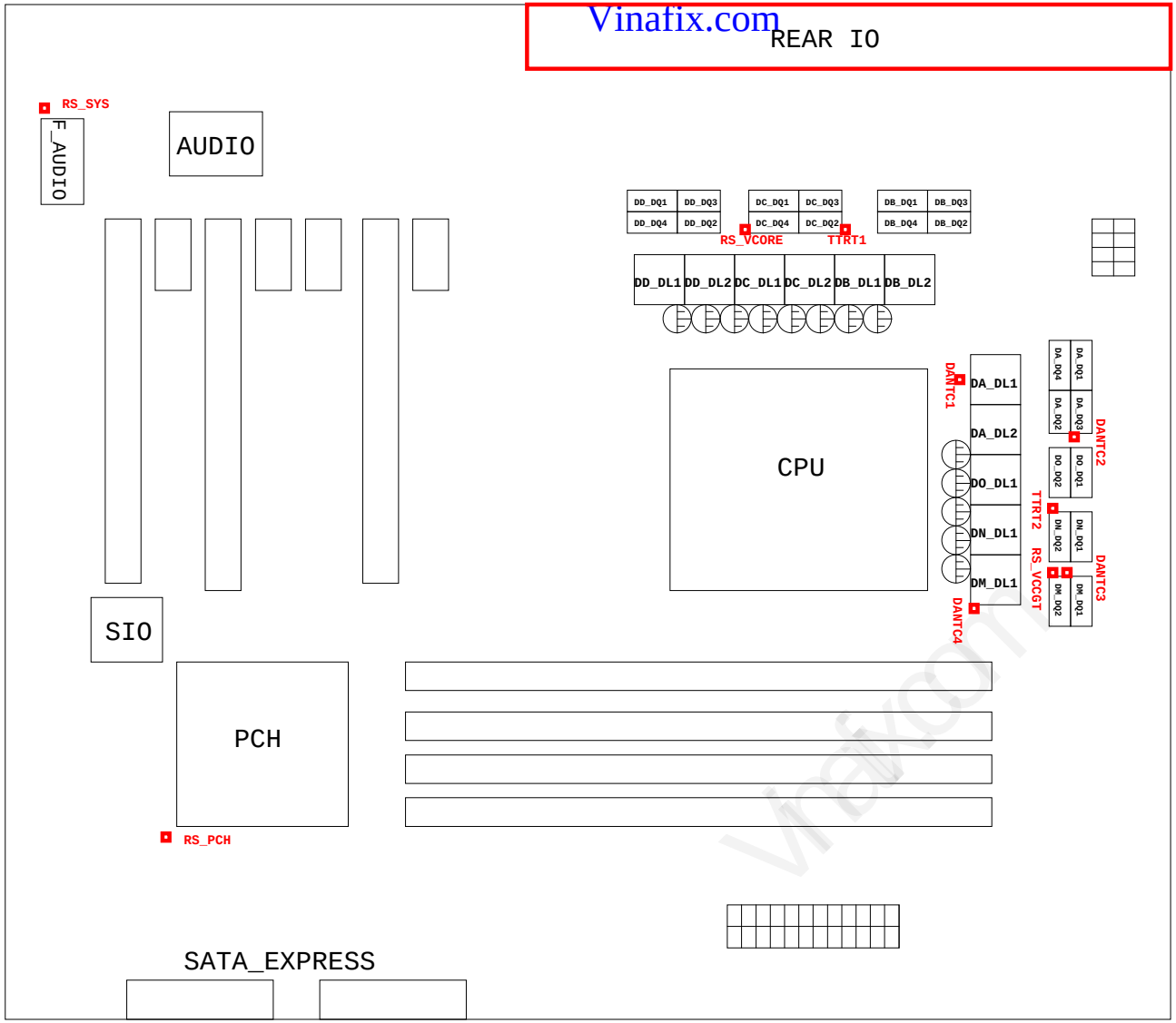

熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

Gigabyte Technology

Title: NTC MAP

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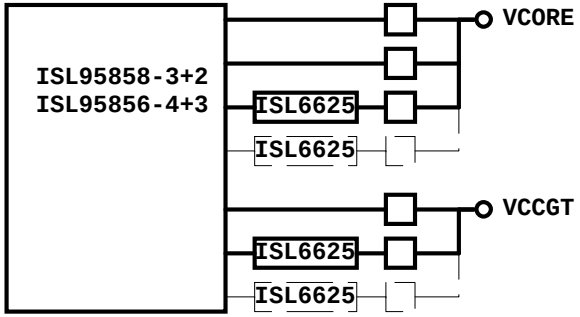
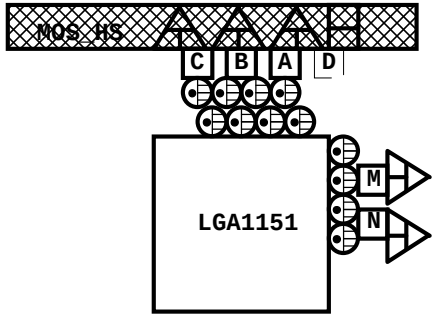
POWER BLOCK MAP

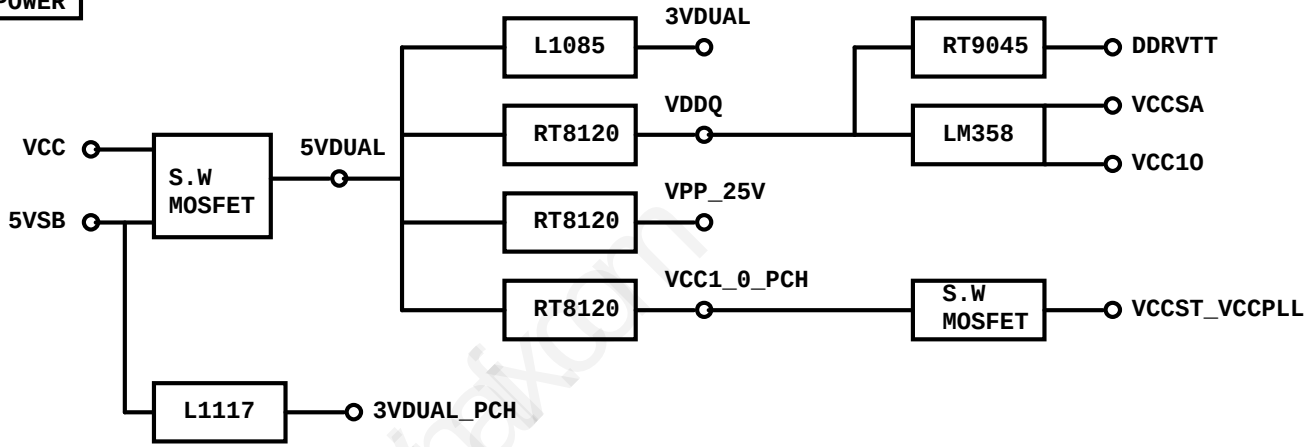
- CPU: VCORE, VCCGT, VCCSA, VCCIO, VDDQ, VCCST_VCCPLL, VCCSFUSEPRG
- DDR4: VDDQ, DDRVTT, VPP_25V, VDDSPD(VCC3)
- PCH: VCC1_0_PCH, VCC1_0_PCH_DSW, VCC10_VCCF24_1P0, VCC10_VCCAMPHYPLL, VCC10_VCCAPLL, VCC3_PCH, 3VDUAL_PCH, VCC3, N_RTCVDD
- IT8628: IT_VCCH, IT_AVCC, 2_5LEVEL
- HM: +12V, VCC, VCC3, VCORE, VCCGT(IMON_VCCGT), VDDQ, VCCSA(IMON_VCORE)

VCORE/VCCGT

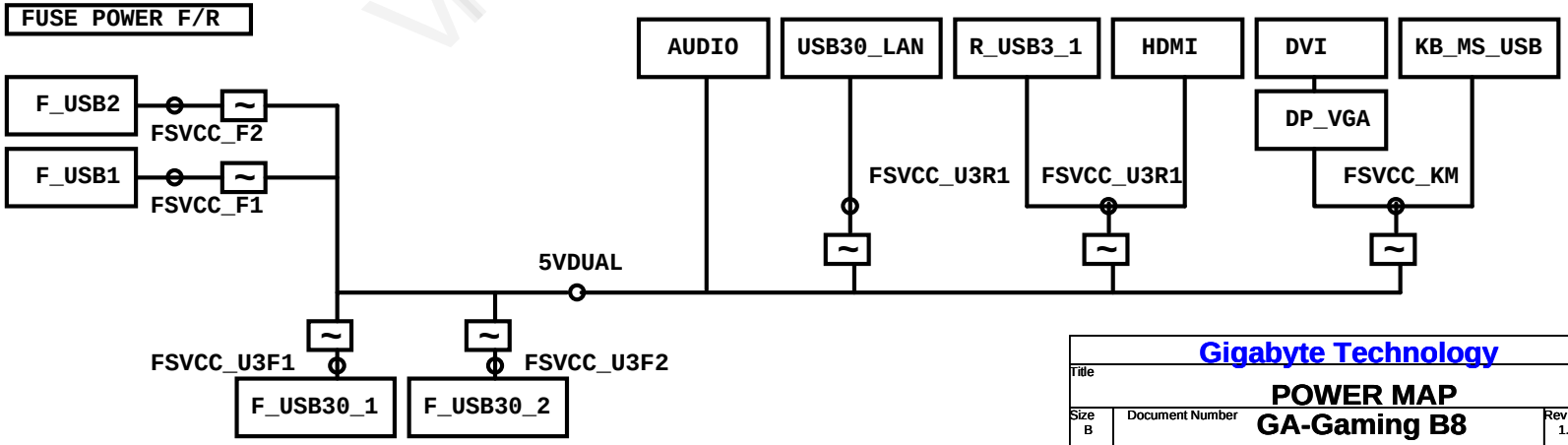




POWER



FUSE POWER F/R



Gigabyte Technology		
Title: POWER MAP		
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固態電容料號.請自行修改

日系黑色固態	Capture Value
11C02-C85600-01R	560u/FP/D/6.3V/68/C/8m
11CO5-C82700-01R	270u/FP/D/16V/88/C/12m
11CO5-C61000-01R	100u/OS/D/16V/66/C/30m
11CO2-C51000-01R	100u/FP/D/6.3V/65/C/13m

日系一般固態	Capture Value
11CO2-685600-01R	560u/FP/D/6.3V/68/8m
11CO5-882700-01R	270u/FP/D/16V/88/12m
11CO5-661000-03R	100u/OS/D/16V/66/30m
11CO2-651000-02R	100u/OS/D/6.3V/66/30m

台系固態	Capture Value
11CO2-661000-09R	100u/OS/D/6.3V/66/A/35m
11CO5-691000-09R	100u/OS/D/16V/69/A/35m
11CO5-8C2700-09R	270u/FP/D/16V/8C/A/10m
11CO2-695600-09R	560u/FP/D/6.3V/69/A/11m

IRON CHOKE

	料號	Capture Value	SIZE	Footprint	
DIP	11LC5-M4500C-01R	0.5uH/40A/IMD109/M/D	10*10	CHOKE05U-40A-1PQ-3	閃電P
DIP	11LC5-M4500C-11R	0.5uH/40A/IMD109/M/NP/D	10*10	CHOKE05U-40A-1PQ-3	無閃電P
DIP	11LC5-M2500C-01R	0.5uH/20A/IMD0809/M/D	8*8	CHOKE1U-R50M-IF	

Skylake Iron Choke閃電P導入機種如下:
[1] Z170/H170 機種全部導入
[2] B150/H110Gaming機種導入, 其餘不導入

Ferrite

	料號	Capture Value	SIZE	Footprint
DIP	11LC5-F3500C-11R	0.5uH/32A/INCG109/FSI/D	10*10	CHOKE05U-40A-1PQ-3
DIP	11LC5-F2500C-11R	0.5uH/25A/INC0809/F/D	8*8	CHOKE1U-R50M-IF
SMD	10LC5-F4300C-01R	0.3uH/40A/SIUC/FR/S	10*7	CHOKE11X8MM-SMD

BEAD

	料號	Capture Value	SIZE	Footprint
DIP	10LFB-15470A-01R	47/4030/15A/S	4*3	BEADC8B-BPH_SMD

PWM料號

		料號	Capture Value	Footprint
PWM	ISL95856	10TA1-695856-01R		IC52QFN-6x6-G
PWM	ISL95858	10TA1-695858-01R		IC52QFN-6x6-G
PWM	IR35201	10TA1-635201-00R		IC56QFN-9VRS4339
PWM	IR3570	10TA1-603570-00R		IC40MLFP-ISL95835
PWM	RT8237C/D	10TA1-608237-01R		IC10DFN-NIS5132

REGULATOR

		料號	Capture Value	Footprint
	NCT3103S	10GL2-203103-01R	NCT3103S/SOP8/2A	IC8-EPSOIC

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Title: RT8120_DDR4 POWER

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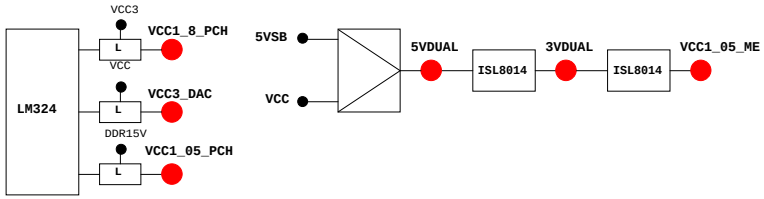
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

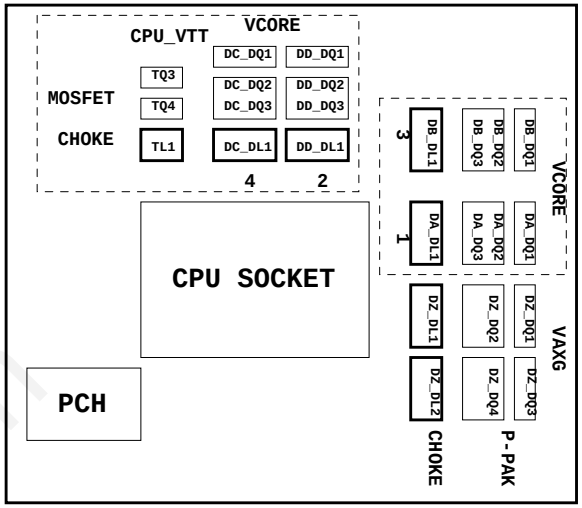
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	空 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSSO0	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

Gigabyte Technology
Title: TABLE LIST
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